ALTUSCN™

Enterprise KVM Solutions by ATEN

KVM Over the NET™
KN2132 / KN4116 / KN4132
User Manual

www.aten.com

FCC Information

This is an FCC Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RoHS

This product is RoHS compliant.

SJ/T 11364-2006

The following contains information that relates to China.

部件名称	有毒有害物质或元素					
	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
电器部件	●	○	○	○	○	○
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○: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T 11363-2006规定的限量要求之下。

●: 表示符合欧盟的豁免条款，但该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006的限量要求。

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User Information

Online Registration

Be sure to register your product at our online support center:

International		http://support.aten.com
North America	ATEN TECH	http://www.aten-usa.com/product_registration
	ATEN NJ	http://support.aten.com

Telephone Support

For telephone support, call this number:

International		886-2-8692-6959
North America	ATEN TECH	1-888-999-ATEN
	ATEN NJ	1-732-356-1703

User Notice

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The manufacturer of this system is not responsible for any radio and/or TV interference caused by unauthorized modifications to this device. It is the responsibility of the user to correct such interference.

The manufacturer is not responsible for any damage incurred in the operation of this system if the correct operational voltage setting was not selected prior to operation. PLEASE VERIFY THAT THE VOLTAGE SETTING IS CORRECT BEFORE USE.

Package Contents

The KN2132 / KN4116 / KN4132 package consists of:

1 KN4116, KN2132, or KN4132 KVM Over the Net™ KVM Switch

2 SA0142 Serial Adapters (RJ45-F to DB9-M; DTE to DCE)

1 Grounding Wire

1 Power Cord

1 Rack Mount Kit

1 Foot Pad Set (4 pcs.)

1 User Manual*

1 Quick Start Guide

Check to make sure that all of the components are present and in good order. If anything is missing, or was damaged in shipping, contact your dealer.

Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the switch or to any other devices on the KN2132 / KN4116 / KN4132 installation.

* Features may have been added since this manual was printed. Please visit our website to download the most up to date version of the manual.

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About This Manual

This User Manual is provided to help you get the most from your KN2132 / KN4116 / KN4132 system. It covers all aspects of installation, configuration and operation. An overview of the information found in the manual is provided below.

Overview

Chapter 1, Introduction, introduces you to the KN2132 / KN4116 / KN4132 System. Its purpose, features and benefits are presented, and its front and back panel components are described.

Chapter 2, Hardware Setup, provides step-by-step instructions for setting up your installation, and explains some basic operation procedures.

Chapter 3, Super Administrator Setup, explains the procedures that the super administrator employs to set up the KN2132 / KN4116 / KN4132's network environment, and change the default username and password.

Chapter 4, Logging In, describes how to log in to the KN2132 / KN4116 / KN4132 with each of the available access methods: from a local console; an internet browser; a stand-alone Windows application (AP) program; and a stand-alone Java application (AP) program.

Chapter 5, The OSD Main Page, explains the OSD layout as well as how to configure and operate the OSD Control Panel.

Chapter 6, Port Access, describes the Port Access page and how to configure the options it provides regarding port manipulation.

Chapter 7, User Management, shows super administrators and administrators how to create, modify, and delete users and groups, and assign attributes to them.

Chapter 8, Device Management, shows super administrators how to configure and control overall KN2132 / KN4116 / KN4132 operations.

Chapter 9, Maintenance, explains how to upgrade the KN2132 / KN4116 / KN4132's firmware, as well as the firmware of the KVM Adapter Cables used to connect its ports to the installed devices.

Chapter 10, Download, describes how to download stand-alone AP versions of the Windows Client, the Java Client, the Log Server, and Power Over the Net (PON) programs.

Chapter 11, Port Operation, provides detailed information on accessing and operating the devices connected to the KN2132 / KN4116 / KN4132's ports.

Chapter 12, The Log Server, explains how to install and configure the Log Server.

Chapter 13, LDAP Server Configuration, explains how to configure the KN2132 / KN4116 / KN4132 for LDAP / LDAPS authentication and authorization with Active Directory or OpenLDAP.

An Appendix, at the end of the manual provides technical and troubleshooting information.

Conventions

This manual uses the following conventions:

Monospaced	Indicates text that you should key in.
[ ]	Indicates keys you should press. For example, [Enter] means to press the **Enter** key. If keys need to be chorded, they appear together in the same bracket with a plus sign between them: [Ctrl+Alt].
1.	Numbered lists represent procedures with sequential steps.
♦	Bullet lists provide information, but do not involve sequential steps.
→	Indicates selecting the option (on a menu or dialog box, for example), that comes next. For example, Start → Run means to open the *Start* menu, and then select *Run*.
⚠	Indicates critical information.

Product Information

For information about all ALTUSEN products and how they can help you connect without limits, visit ALTUSEN on the Web or contact an ALTUSEN Authorized Reseller. Visit ALTUSEN on the Web for a list of locations and telephone numbers:

International		http://www.aten.com
North America	ATEN TECH	http://www.aten-usa.com
	ATEN NJ	http://www.aten.com

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Introduction

Overview

The KN2132 / KN4116 / KN4132 are IP-based KVM control units that allow both local and remote operators to monitor and access multiple computers from a single console. For example, a single KN4132 can control up to 32 computers. By cascading up to 32 compatible 16 port switches, as many as 512 computers can be controlled on a complete two stage installation.

The switches are differentiated according to the number of buses they support and the number of KVM ports they provide – as shown in the table below:

Model	Bus Support	KVM Ports
KN2132	1 Local; 2 Remote	32
KN4116	1 Local; 4 Remote	16
KN4132	1 Local; 4 Remote	32

Each bus permits a separate user session so that up to three (KN2132) or five (KN4116/KN4132) concurrent independent connections to the local servers can take place. Up to 32 users can share the remote buses. A *Message Board* feature allows them to communicate with each other to facilitate port sharing.
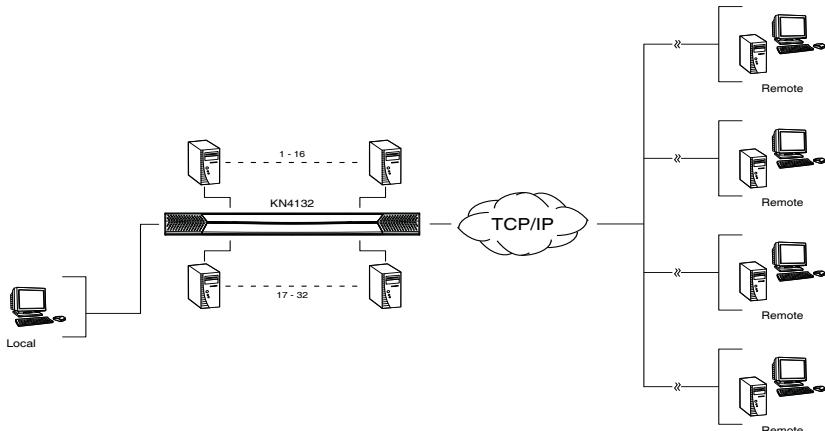
Since the KN2132 / KN4116 / KN4132 uses TCP/IP for its communications protocol, it can be accessed via its IP address from anywhere on the LAN, WAN, or Internet – whether that computer is located down the hall, down the street, or half-way around the world. Remote operators can log in via their browser or make use of stand-alone *Windows* or *Java* GUI applications. Java allows the switches to work with Sun Java Runtime Environment (JRE) enabled operating systems – ensuring multi-platform operability.

The client software allows operators to exchange keyboard, video and mouse signals with the computers attached to the KN2132 / KN4116 / KN4132 just as if they were present locally and working on the equipment directly.

Administrators can handle a multitude of maintenance tasks with ease - from installing and running GUI applications, to BIOS level troubleshooting, routine monitoring, concurrent maintenance, system administration, rebooting and even pre-booting functions.

Local console operation is easily accomplished either by entering *hotkey* combinations from the keyboard, or with the same OSD (On Screen Display) menu system that the remote consoles use.

Monitoring the installation's activities couldn't be easier. An convenient *Auto Scan* feature permits automatic switching from port to ports at user-specified intervals, while the *Panel Array Mode* can display the video output of up to 16 computers at the same time.

The switches feature RJ-45 connectors allowing them to use CAT 5e cable to link to the computers. This space-saving innovation means that a full 16 or 32 port switch can be conveniently installed in a 1U system rack, and the installation can take advantage of the internal network wiring built into most modern commercial buildings.

Setup is fast and easy; plugging cables into their appropriate ports is all that is entailed. Because the switch intercepts keyboard input directly, there is no need to get involved in complex software installation routines, or to be concerned with incompatibility problems.

Since the firmware is upgradeable over the Net, you can stay current with the latest functionality improvements simply by downloading firmware updates from our website as they become available.

With its advanced security features, the KN2132 / KN4116 / KN4132 provides the fastest, most reliable, most cost effective way to remotely access and manage widely distributed multiple computer installations.

Features

- 16 or 32 port remote access KVM switch – monitor and control up to 16 or 32 computers – up to 512 computers in a two-level cascade
- Two 10/100/1000 Mbps NICs for redundant LAN or two IP operation
- Two IP design supports 2 (KN2132) or 4 (KN4116/KN4132) remote sessions
- Multi-user support – up to 64 user accounts – 1 local and 2 (KN2132) or 4 (KN4116/KN4132) remote users can simultaneously access separate ports – up to 32 users share the remote buses
- Remotely access computers via LAN, WAN, or the Internet; control your installation when and where you want
- RJ-45 connectors and CAT 5e cable for a neat and tidy, efficient installation
- Web-based Java implementation allows the switch to be accessed from an internet browser
- Browser access can be disabled – Windows and Java GUI AP programs provided for non-browser connectivity – Java works with practically all operating systems
- Graphical OSD and toolbars for convenient, user friendly operation
- Full-screen graphical OSD for the local console
- Full-screen or sizable and scalable remote desktop window – in full-screen mode the remote desktop display scales to user's monitor display size
- Panel Array Mode – view up to 32 ports at the same time – up to 42 ports for cascaded installations
- High video resolution: up to 1600 x 1200 @ 60Hz – 32 bit for the local console; up to 1600 x 1200 @ 60Hz for remote sessions
- Multi-language support
- Software (On-screen) keyboard
- Altusen CC (Control Center) support
- PON (Power Over the NET™) support via Java
- PPP dial in support
- Video quality and video tolerance can be adjusted to optimize data transfer speed

- Mouse DynaSync for USB mice – local and remote mouse movement are the same – no need to constantly resync the two movements

- Windows-based Log Server

- Supports all major server platforms and VT100 based serial devices

- Supports multiplatform server environments: PS/2, USB, and Sun

- Supports 10Base-T, 100Base-T, 1000Base-T, Auto-Sense, TCP/IP, HTTP, DNS, DHCP, PPP, UDP, ARP, Ping

- Multi-level authentication: super administrator; administrator; user; viewer – no limit on the number of each type

- Advanced security features include password protection and advanced encryption technologies – 1024 bit RSA; 56 bit DES; 256 bit AES; and 128 bit SSL

- Remote authentication support: RADIUS, LDAP, LDAPS, and Active Directory

- Flash upgradeable firmware over the network

System Requirements

Remote Console Computers

- For best results we recommend that the computers used to access the switch have at least a P III 1 GHz processor, with their screen resolution set to 1024 x 768.

- Browsers must support 128 bit SSL encryption.

- For best results, a network transfer speed of at least 512kbps is recommended.

- For the Windows Client AP, DirectX 8 must be present

- For the browser-based Java Applet and Java Client AP, the latest version of Sun's Java Runtime Environment (JRE) must be installed

- For the *Log Server*, you must have the Microsoft Jet OLEDB 4.0 or higher driver installed.

Computers

The following equipment must be installed on the computers that connect to the KN4132's KVM ports:

- A VGA, SVGA or Multisync port

- For USB KVM Adapter Cable Connections: a Type A USB port and USB host controller

- For PS/2 KVM Adapter Cable Connections: 6-pin mini-DIN keyboard and mouse ports

Video

Only the following **non-interlaced** video signals are supported:

Resolution	Refresh Rates
640 x 480	60, 72, 75, 85, 90*, 100*, 120*
720 x 400	70
800 x 600	56, 60, 72, 75, 85, 90*, 100*, 120*
1024 x 768	60, 70, 75, 85, 90*, 100*
1152 x 864	60, 70, 75, 85
1280 x 1024	60, 70, 75, 85
1600 x 1200	60

* See *Additional Video Resolution Procedures*, page 167 for information on running with these refresh rates.

KVM Adapter Cables

◆ Cat 5e (or higher) cable is required to connect the KN2132 / KN4116 / KN4132 to one of the KVM Adapter Cables (see *Single Stage Installation Diagram*, page 18).

◆ The following KVM Adapter Cables are required for use with the KN2132 / KN4116 / KN4132:

Function	Module
Connect to devices with PS/2 ports	KA9120
Connect to devices with USB ports (all platforms)	KA9170
Connect to Sun Legacy Computers	KA9130
Connect to serial based devices	KA9140
	KA7140

Operating Systems

◆ Supported operating systems for servers that connect to the KN2132 / KN4116 / KN4132 are shown in the table, below:

OS		Version
Windows		2000 and higher
Linux	RedHat	7.1 and higher
	Fedora	Core 2 and higher
	SuSE	9.0 and higher
	Mandriva (Mandrake)	9.0 and higher
UNIX	AIX	4.3 and higher
	FreeBSD	4.2 and higher
	Sun	Solaris 8 and higher
Novell	Netware	5.0 and higher
Mac		OS 9 and higher*
DOS		6.2 and higher

◆ Supported operating systems for users that log into the KN2132 / KN4116 / KN4132 include Windows 2000 and higher, and those capable of running Sun's Java Runtime Environment (JRE) 6, Update 3, or higher.

Browsers

Supported browsers for users that log into the KN2132 / KN4116 / KN4132 include the following:

Browser	Version
IE	6 and higher
Firefox	1.5 and higher
Mozilla	1.7 and higher
Safari	2.0 and higher*
Opera	9.0 and higher
Netscape	8.1 and higher

* See *Mac Systems*, page 162, for further information.

Components

Front View

No.	Component	Description
1	Power LED	Lights when the KN4132 is powered up and ready to operate.
2	Port LEDs	The Port LEDs provide status information about their corresponding KVM Ports They light as follows:
		◆ GREEN: The computer attached to its corresponding port is On Line.
		◆ RED: The computer attached to its corresponding port is Selected (it has the KVM focus).
		◆ GREEN + RED: The computer attached to its corresponding port is On Line and Selected.
		The LEDs are steady under normal conditions, but a LED flashes at half second intervals when its corresponding port is accessed under Auto Scan Mode or Skip Mode (see pages 124 and 125).
3	LAN LEDs	Primary and Secondary 10/100/1000 Mbps LAN LEDs. They light as follows:
		◆ RED: 10 Mbps
		◆ RED + GREEN: 100 Mbps
		◆ GREEN: 1000 Mbps
4	USB Ports	A USB keyboard and mouse can plug in here. This can either be in place of, or in addition to, plugging a keyboard and mouse into the ports on the rear panel.

Note: The figure, shows the front panel of a KN2132 / KN4132. The KN4116 differs in that it only has a single row of port LEDs.

(Continued from previous page.)

No.	Component	Description
5	Reset Switch	**Note:** This switch is recessed and must be pushed with a thin object - such as the end of a paper clip, or a ballpoint pen.
		◆ Pressing and releasing this switch when the KN2132 / KN4116 / KN4132 is running performs a system reset.
		◆ Pressing and holding this switch in for more than three seconds when the KN2132 / KN4116 / KN4132 is running resets its configuration to the factory default settings.
		Note: This does not clear User Account information. See *Clear Login Information*, page 168, for information on clearing user account information.
		◆ Pressing and holding this switch in while powering on the switch returns the KN2132 / KN4116 / KN4132 to its factory default firmware level, rather than the firmware version that the switch has been upgraded to. This allows you to recover from a failed firmware upgrade and gives you the opportunity to try upgrading the firmware again.
		Note: This operation should only be performed in the event of a firmware upgrade failure that results in the device becoming inoperable.
6	Port Switching Buttons	◆ Press **PORT DOWN** to switch from the current port to the previous port on the installation.
		◆ Press **PORT UP** to switch from the current port to the next port on the installation.

Rear View

No.	Component	Description
1	Power Socket	The power cable plugs in here.
2	Power Switch	This standard slide switch powers the unit on and off.
3	Secondary LAN Port	The cable that connects the KN4132 to the backup network interface (10/100/1000 Mbps) plugs in here.
4	PON Port	This connector is provided for a Power over the Net™ (PON) unit which allows computers attached to the KN4132 to be booted remotely over the net. See *Single Station Installation*, page 17, step 6 for installation details. Contact your dealer for more information regarding PON units.
5	Grounding Terminal	The wire used to ground the KN2132 / KN4116 / KN4132 connects here.
6	Primary LAN Port	The cable that connects the KN4132 to the primary network interface (10/100/1000 Mbps) plugs in here.
7	Modem Port	For dial in connection should the KN4132 be unavailable over the network. See *Single Station Installation*, page 17, step 7 for installation details.
8	Local Console Ports	The KN4132 can be accessed via a local console as well as over the Net. The local console devices (keyboard, monitor and mouse), plug in here. Any combination of USB and PS/2 keyboards and mice can be used
9	KVM Ports	The Cat 5e cables that link the KN4132 to the KVM Adapter Cables (which connect to the computers), plug in here.

Note: The figure, above, shows the rear panel of a KN2132 / KN4132 with two blocks of 16 KVM ports (32 ports in total). The KN4116 differs in that it only has a single block of KVM ports (16 ports in total).

Hardware Setup

Overview

For convenience and flexibility that allows mixing the PS/2 and USB interfaces, as well as multiple platforms, the KN2132 / KN4116 / KN4132's design utilizes KVM Adapter Cables, that serve as intermediaries between the switch and the connected devices (refer to the installation diagram on p. 16).

A separate KVM Adapter Cable is required for each computer or device connection. The model numbers of the Adapter Modules are given in the *KVM Adapter Cables* section, page 6.

Before You Begin

1. Important safety information regarding the placement of this device is provided on page 149. Please review it before proceeding.

2. Make sure that power to all the devices you will be connecting up have been turned off. You must unplug the power cords of any computers that have the Keyboard Power On function.

Stacking and Rack Mounting

The KN2132 / KN4116 / KN4132 can be stacked on the desktop or rack mounted in a variety of ways. The following sections take you through the procedures for each method.

Stacking

The KN2132 / KN4116 / KN4132 can be placed on any appropriate level surface that can safely support its weight plus the weight of its attached cables. To place the KN2132 / KN4116 / KN4132, or to stack units if you are daisy chaining them, remove the backing material from the bottom of the rubber feet that came with this package, and stick them onto the switch's bottom panel at the corners, as shown in the diagram, below:
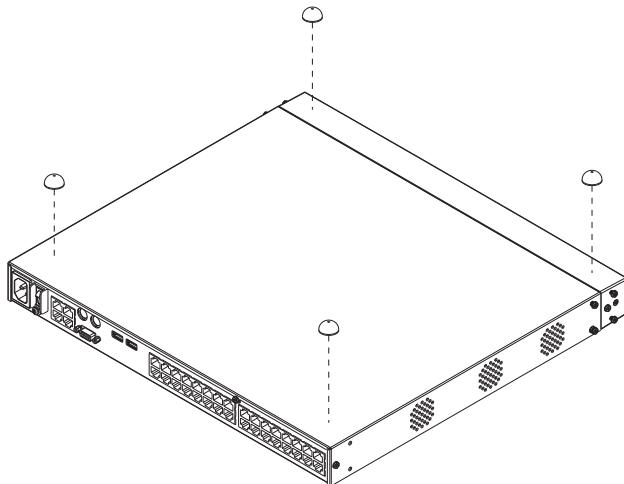
Note: To ensure adequate ventilation, allow at least 5.1 cm on each side, and 12.7cm at the back for power cord and cable clearance.

Rack Mounting

The KN2132 / KN4116 / KN4132 can be mounted in a 19" (1U) rack. The mounting brackets can screw into either the front or the back of the unit so that it can attach to the front or the back of the rack.

Rack Mounting - Front

To mount the unit at the front of the rack, do the following:

1. Remove the two screws at the front of the unit, as shown in the diagram below:

Phillips head hex
M3 x 6
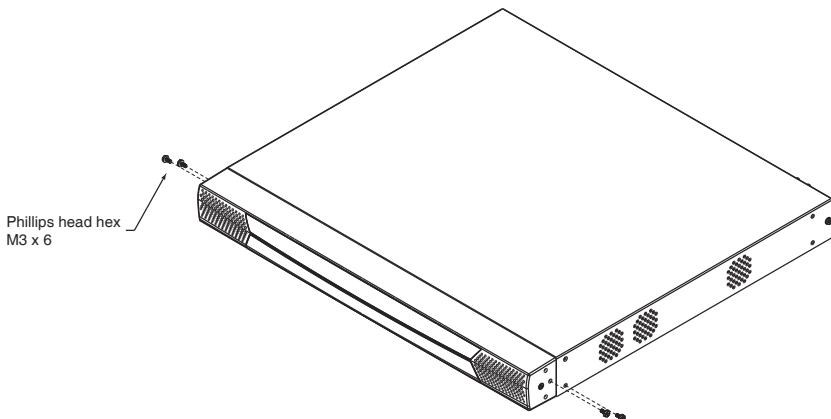
2. Use the M3 x 8 Phillips head hex screws supplied with the rack mount kit to screw the rack mounting brackets into the front of the unit:

Phillips head hex
M3 x 8
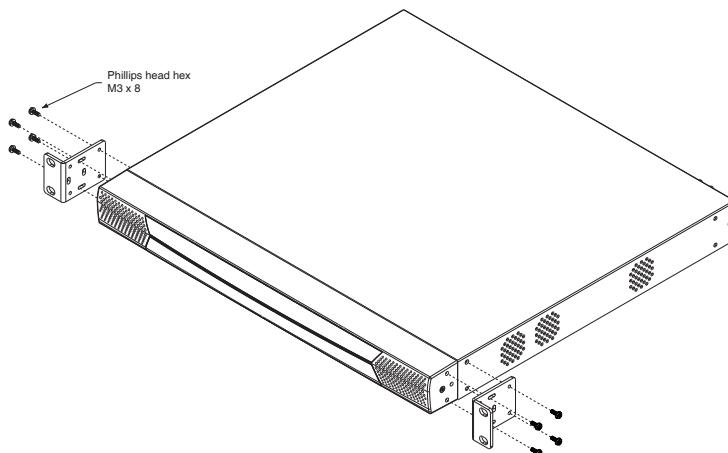
3. Position the device in the front of the rack and align the holes in the mounting brackets with the holes in the rack.

4. Screw the mounting brackets to the rack.
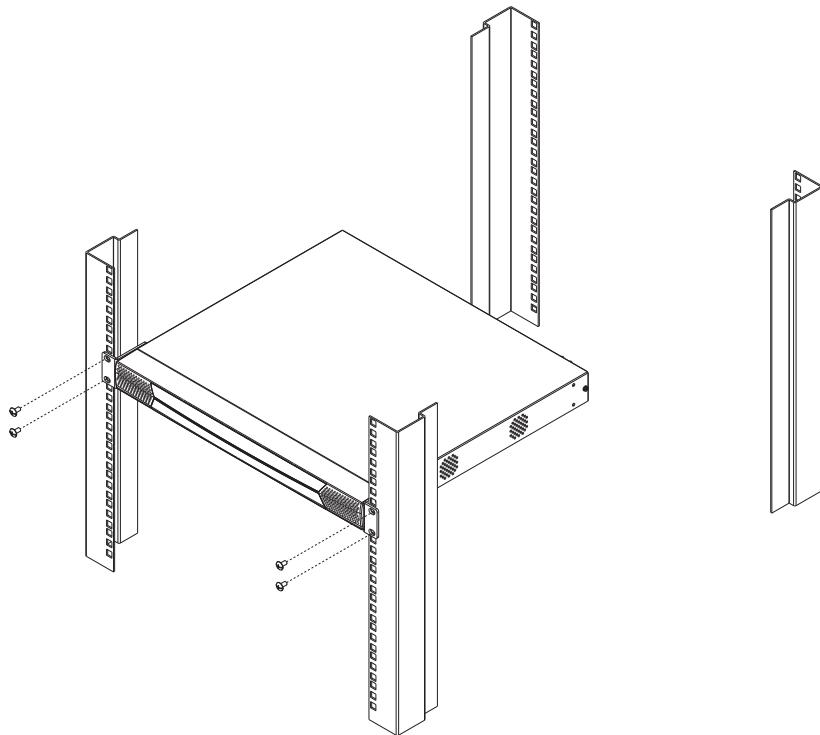
Note: Cage nuts are provided for racks that are not prethreaded.

Rack Mounting - Rear

To mount the unit at the rear of the rack, do the following:

1. Remove the two screws at the rear of the unit:

Phillips head hex
M3 x 6
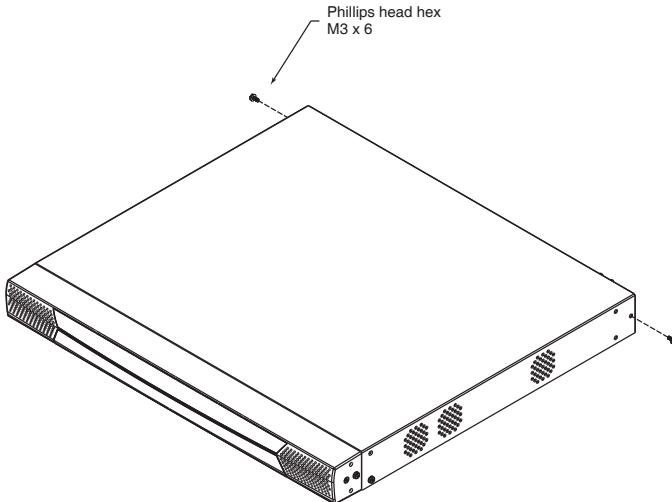
2. Use the M3 x 8 Phillips head hex screws supplied with the rack mounting kit to screw the rack mounting brackets into the rear of the unit:

Phillips head hex
M3 x 8
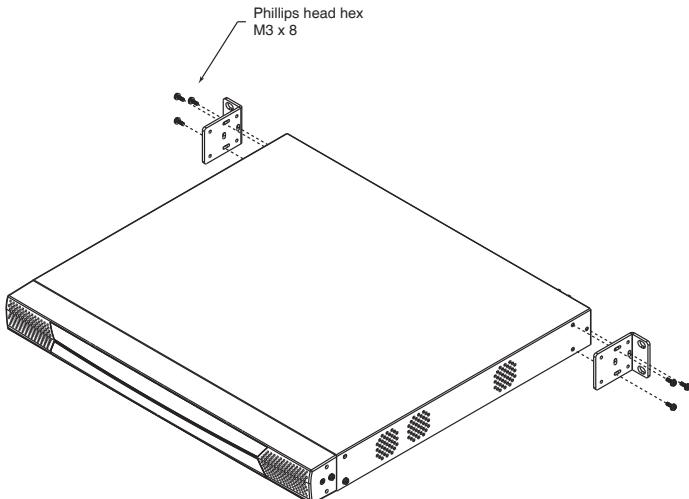
3. Position the device in the rack and align the holes in the mounting brackets with the holes in the rack.

4. Screw the mounting brackets to the rear of the rack.
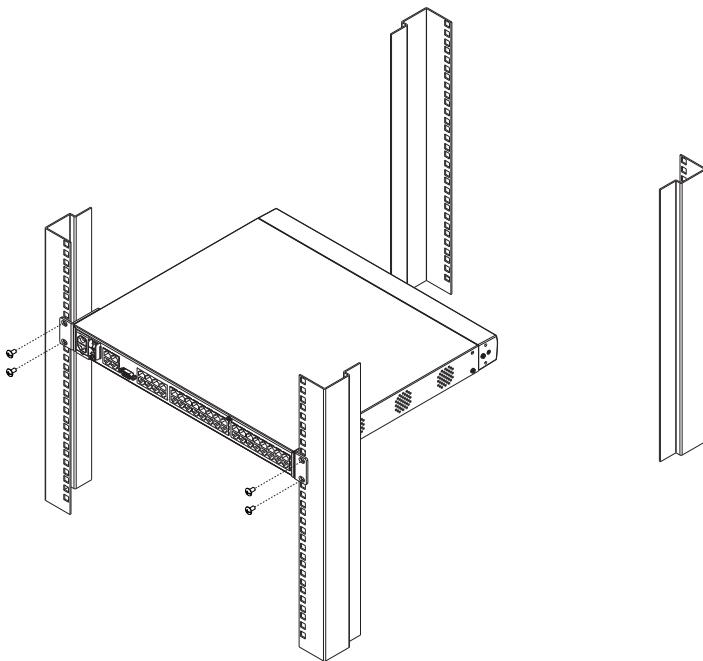
Note: Cage nuts are provided for racks that are not prethreaded.

Single Station Installation

In a Single Stage installation, there are no additional switches cascaded from the KN2132 / KN4116 / KN4132. To set up a single stage installation, refer to the installation diagrams starting on page 18 (the numbers in the diagram correspond with the numbers of the instruction steps), and do the following:

1. Plug your Local Console's keyboard, monitor, and mouse into the unit's Console Ports. Each port is color coded and marked with an appropriate icon to identify itself.

   Note: 1. You can use any combination of keyboard and mouse connections. For example, you can use a PS/2 keyboard with a USB mouse.

   2. USB keyboards and mice can plug into the USB ports on the front panel, as well as into the ports in the console port section.

   3. The KN2132 / KN4116 / KN4132 does not support distances that exceed 20m between itself and the local monitor.

2. Use Cat. 5e cable to connect any available KVM port to a KVM Adapter Cable that is appropriate for the computer you are installing (see the table on page 6 for details).

   Note: 1. If you are using a KA9120, KA9130, or KA9131 Adapter Cable, refer to page 165 for mouse pointer synchronization information.

   2. If you are using a KA9131 Adapter Cable, refer to page 163 for video and mouse adjustment information.

   3. If you are using a KA7140 Adapter Cable, refer to page 158 for setup and operation information.

   4. The distance between the KN2132 / KN4116 / KN4132 and the KVM Adapter Cable must not exceed 40m.

3. Plug the connectors on the KVM Adapter Cable into the appropriate ports of the computer you are installing. (See *Adapter Module Connection Diagram*, page 19.)

4. Plug a cable from the LAN or WAN into the KN2132 / KN4116 / KN4132's primary network interface socket.

5. (Optional) Plug another cable from the LAN or WAN into the KN2132 / KN4116 / KN4132's backup (secondary) network interface socket.

6. (Optional) Use Cat. 5e cable to connect the KN2132 / KN4116 / KN4132's PON port to an SA0142 Adapter. Connect the Adapter to the PON IN port of a PN0108 Power Over the Net™ unit.

7. (Optional) Use Cat. 5e cable to connect the KN2132 / KN4116 / KN4132's Modem port to an SA0142 Adapter. Connect the Adapter's serial connector to the modem's DB-9 port.

8. Use the grounding wire supplied with this package to ground the unit by connecting one end of the wire to the grounding terminal, and the other end of the wire to a suitable grounded object.

> **Note:** Do not omit this step. Proper grounding helps to prevent damage to the unit from surges or static electricity.

9. Plug the power cord supplied with this package into the KN2132 / KN4116 / KN4132's Power Socket, and then into an AC power source.

After the KN2132 / KN4116 / KN4132 is cabled up you can turn on the power. After it is powered up, you can turn on the computers.

Single Stage Installation Diagram

Adapter Module Connection Diagram

KA9120

KA9131

KA9170

KA9130

KA7140

KA9140
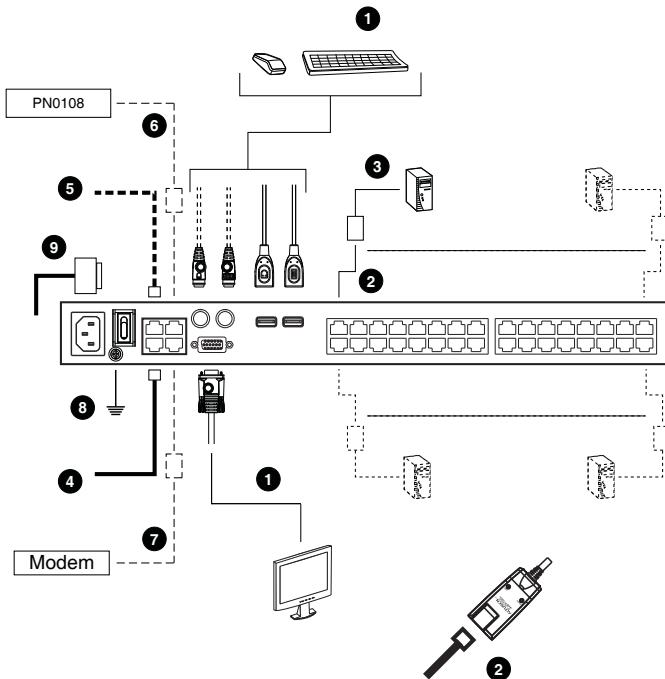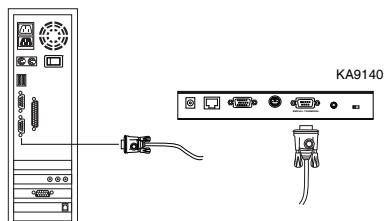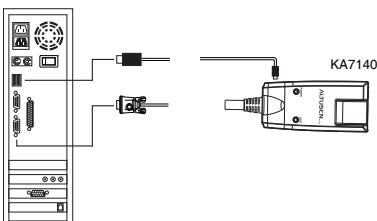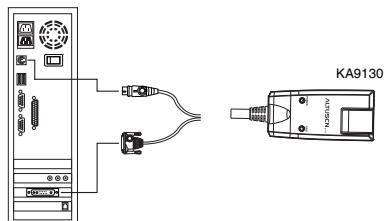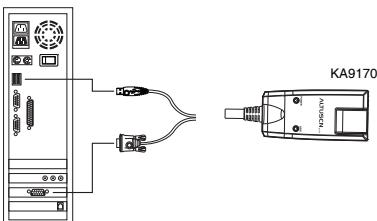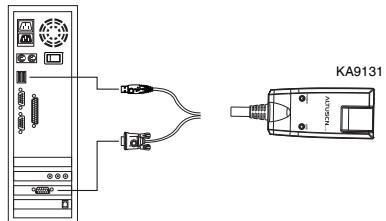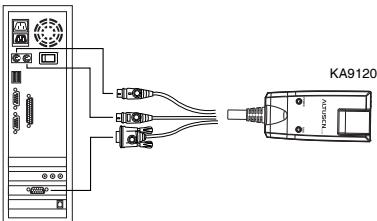
Two Stage Installation

To control even more computers, up to 32 additional KVM switches can be cascaded from the KVM ports of the KN2132 / KN4116 / KN4132. As many as 512 computers can be controlled in a complete two stage installation.

In a cascaded installation, the KN2132 / KN4116 / KN4132 is considered the *First Stage* unit, the cascaded switches are considered *Second Stage* units.

Note: The KVM switch shown in the installation example is the KH1516. See *Supported KVM Switches*, page 175, for a list of supported KVM switches that can be cascaded from the KN2132 / KN4116 / KN4132.

To set up a two stage installation, refer to the diagram on page 21, and do the following:

1. Make sure that power to all the devices you will be connecting up, including all preexisting devices on the installation, have been turned off.

2. Use Cat 5e cable to connect any available KVM Port on the First Stage unit (the KN2132 / KN4116 / KN4132) to a PS/2 style KVM Adapter Cable (as described under *KVM Adapter Cables*, page 6).

3. Plug the adapter cable's KVM connectors to the Keyboard, Video, and Mouse Console ports of the Second Stage unit.

   Note: The distance between the Second Stage unit and the KN2132 / KN4116 / KN4132 must not exceed 40m.

   ---

4. Use KVM cable sets (as described in the Cables section of the cascaded KVM switch's User Manual), to connect any available KVM port on the Second Stage unit to the Keyboard, Video, and Mouse ports of the computer you are installing.

5. Plug the power cord that came with the cascaded KVM switch into its Power Socket, and then into an AC power source.

6. Repeat these steps for any other Second Stage units you wish to connect.

7. Power on the Second Stage unit(s), then power on the KN2132 / KN4116 / KN4132.

8. Turn on the power to all the computers.

> **Note:** The Power On sequence requires that all Second Stage units be powered on first. After all the Second Stage units have been powered on, the First Stage unit must be powered on next. After the Second and First stage units have been powered on, the computers can be powered on.

Two Stage Installation Diagram
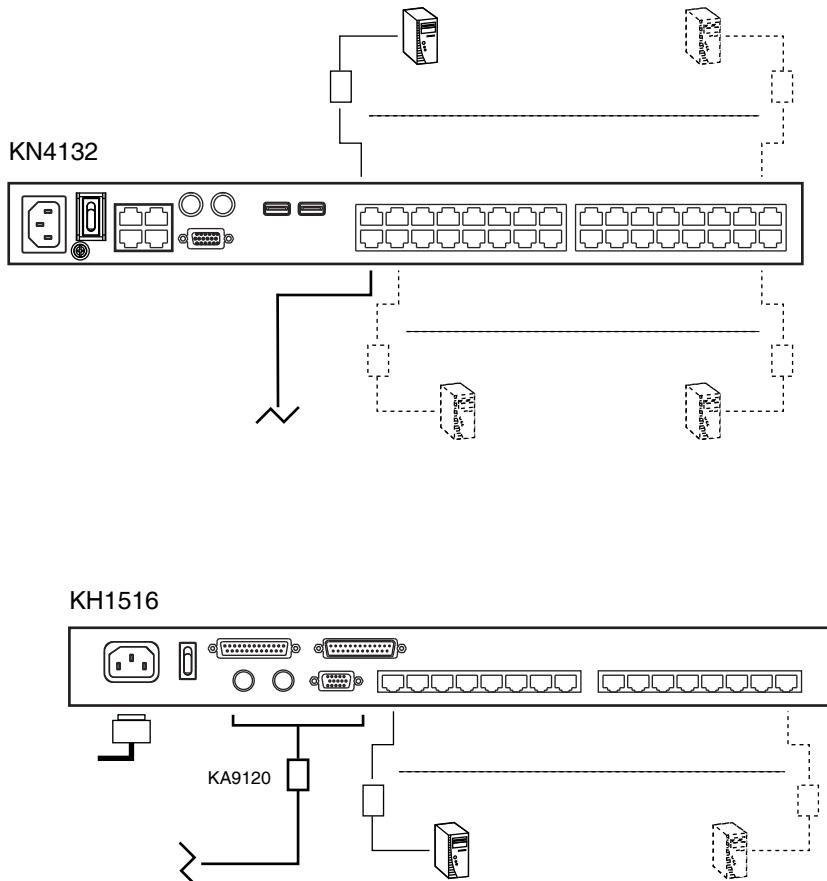
Hot Plugging

The KN2132 / KN4116 / KN4132 supports hot plugging - components can be removed and added back into the installation by unplugging and replugging their cables from the ports without the need to shut the unit down.

If you change computer positions, however, in order for the OSD menus to correspond to the KVM port changes, you must manually reedit the Port Names to have the OSD reflect the new Port information. See *Port Naming*, page 62 for port editing details.

Note: If the computer's Operating System does not support hot plugging, this function may not work properly.

Powering Off and Restarting

If it becomes necessary to power off the KN2132 / KN4116 / KN4132, or if the switch loses power and needs to be restarted, wait 10 seconds before powering it back on. The computers should not be affected by this, but if any of them should fail, simply restart them.

Port ID Numbering

Each computer on the installation is assigned a unique Port ID. The Port ID is a one or two segment number that is determined by the Stage Level and KVM Port number of the KVM switch that the computer is connected to.

The first segment represents the KVM Port number of the First Stage unit; the second segment represents the KVM Port number of the Second Stage unit.

A computer attached to a First Stage unit has a one segment Port ID (from 1-32) that corresponds to the KVM Port number that it is connected to.

A computer attached to a Second Stage unit has a two segment Port ID:

- The second segment (from 1—16), represents the KVM Port number on the Second Stage unit that the computer is connected to. The first segment (from 1—32) represents the KVM Port number on the First Stage unit that the Second Stage unit links back to.

- For example, a Port ID of 12 - 3 refers to a computer that is connected to KVM Port 3 of a Second Stage unit that links back to KVM Port 12 of the First Stage unit.

Port Selection

Port Selection is accomplished by means of the OSD. OSD Operation details are discussed in Chapters 5 and 6.

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Chapter 3
Super Administrator Setup

Overview

The KN2132 / KN4116 / KN4132 supports three types of user, as shown in the table, bellow:

User Type	Role
Super Administrator	Access and manage ports and devices. Manage Users, and Groups. Configure the overall installation. Configure personal working environment.
Administrator	Access and manage authorized ports and devices. Manage Users and Groups. Configure personal working environment.
User	Access authorized ports and devices. Manage authorized ports and devices; configure personal working environment.

This chapter discusses the administrative procedures that the Super Administrator performs.

First Time Setup

Once the KN2132 / KN4116 / KN4132 has been cabled up, the Super Administrator needs to set the unit up for user operation. This involves setting the network parameters and adding users. The most convenient way to do this for the first time is from the local console.

After the local console has been connected up (see *Single Station Installation*, page 17), and the KN2132 / KN4116 / KN4132 turned on, a login prompt appears on the console monitor:
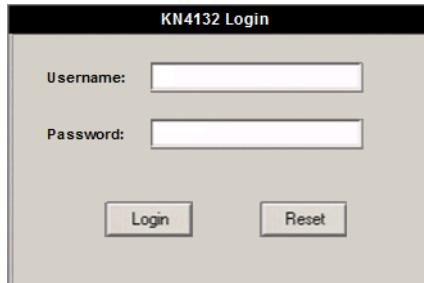
Since this is the first time you are logging in, use the default Username: *administrator*; and the default Password: *password*.

Note: For security purposes, you should change these to a unique Username and Password. (See *Changing the Super Administrator Login*, page 28 for details.)

After you successfully log in, the Local Console Main Screen appears:
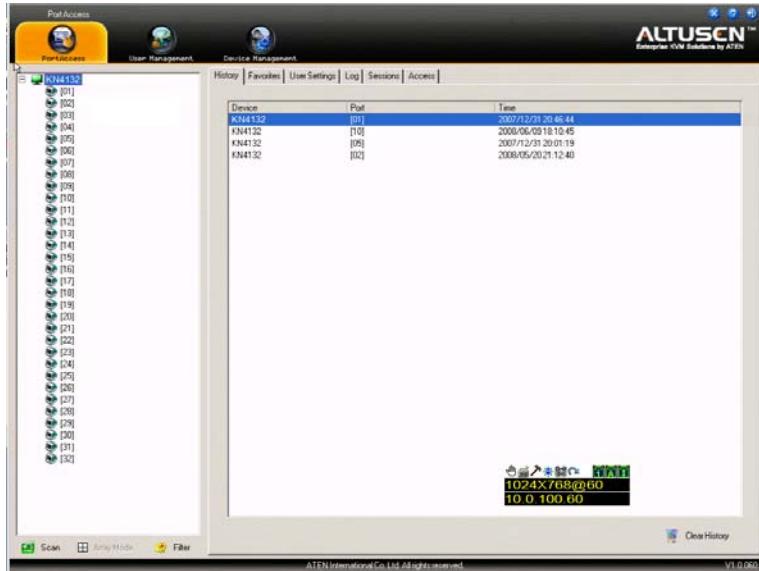
Network Setup

To set up the network, do the following:

1. Click **Device Management**

2. Select the **Network** tab.

Fill in the fields according to the information provided under *Network*, page 97.

Changing the Super Administrator Login

To change the default Super Administrator Username and Password, do the following:

1. At the top of the screen, click **User Management**.

   The User Management page has a list of Users and Groups in the left hand panel, and a more detailed list of users – with more information about them – in a large central panel. Since this is the first time the page is being accessed, only the Super Administrator appears:
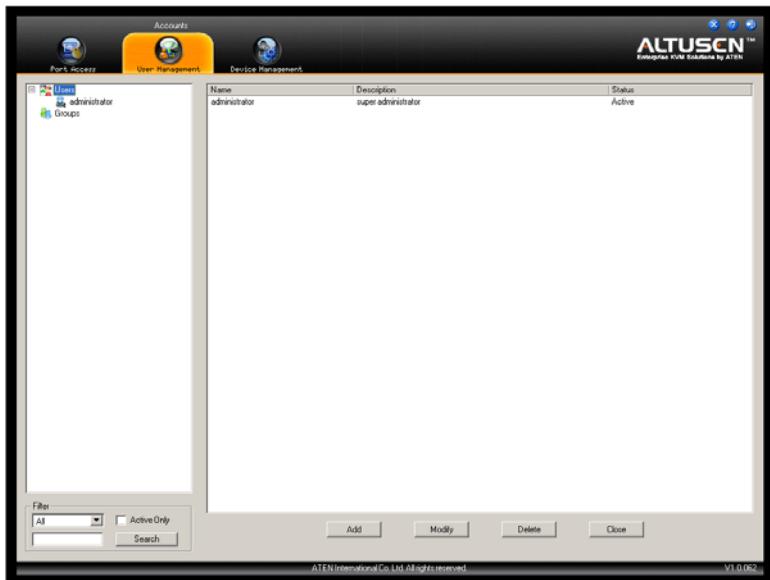
2. Click **administrator** in the left panel
   – or –

   Select *administrator* in the central panel, then click **Modify** (at the bottom of the page.)

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The *User Information* page appears:
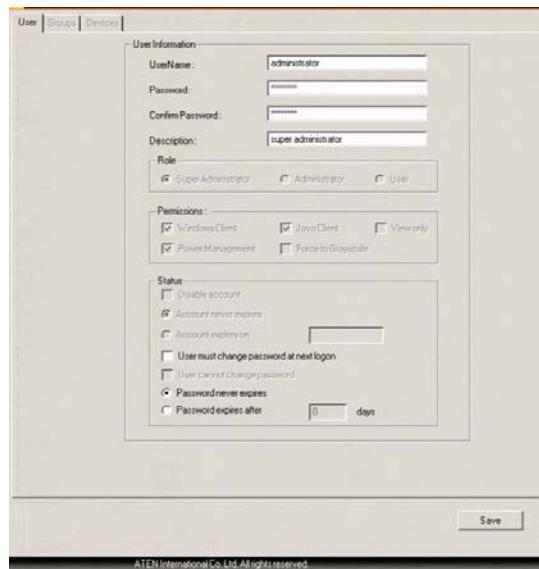
3. Change the Username and Password to something unique.

4. Re-enter the password to confirm it is correct.

5. Click **Save**.

6. When the dialog box informing you that the change completed successfully appears, click **OK**.

7. Click on another item on the main OSD page to close this page.

Moving On

After setting up the network and changing the default Super Administrator password, you can proceed to other administration activities. These include User Management, Device Management, and Firmware Upgrade Maintenance.

These activities can be accomplished using any of the KN2132 / KN4116 / KN4132's GUI utilities: the Local Console; the browser-based Java applet; the stand-alone Windows Client AP; or the stand-alone Java Client AP. Choose the approach that suits you best.

Note: Firmware Upgrade Maintenance cannot be performed from the local console. You must log in remotely with one of the KN2132 / KN4116 / KN4132's other GUI utilities for this operation.

Chapter 4
Logging In

The KN2132 / KN4116 / KN4132 can be accessed from a local console; an internet browser; a Windows application (AP) program; and Java application (AP) program. This chapter describes the login procedures for each.

Local Console Login

When the local console is attached (see *Single Station Installation*, page 17) and there is no user logged in, the KN2132 / KN4116 / KN4132's login screen appears on the display:

```
┌────────────────────────────────────────┐
│              KN4132 Login                │
│                                          │
│   Username:  [                       ]   │
│                                          │
│   Password:  [                       ]   │
│                                          │
│                                          │
│         [ Login ]      [ Reset ]         │
│                                          │
└────────────────────────────────────────┘
```

5. Simply key in your Username and Password, then click **Login** to bring up the KN2132 / KN4116 / KN4132's OSD Main Page. For a description of the OSD Main Page, see page 41.

> **Note:** If you supply an invalid login, the authentication routine will return an *Invalid Username or Password* message. If you see this message, log in again being careful with the Username and Password.

Browser Login

The KN2132 / KN4116 / KN4132 can be accessed via Internet browser from any platform that has the Java Runtime Environment (JRE) installed. (See *System Requirements*, page 5, for the required JRE version.)

If you don't already have the required JRE installed, it is available for free download from the Java web site: `http://java.com`.

1. To access the switch, do the following:Open the browser and specify the IP address of the KN2132 / KN4116 / KN4132 you want to access in the browser's location bar.

   > **Note:** For security purposes, a login string may have been set by the administrator. If so, you must include a forward slash and the login string along with the IP address when you log in. For example:
   >
   > `192.168.0.100/kn4132`
   >
   > If you don't know the IP address and login string, ask your Administrator.

2. When a Security *Alert* dialog box appears, accept the certificate – it can be trusted. (See *Trusted Certificates*, page 169, for details.) If a second certificate appears, accept it as well.

   Once you accept the certificate(s), the login page appears:

3. Provide a valid Username and Password (set by the KN2132 / KN4116 / KN4132 administrator), then click **Login** to bring up the KN2132 / KN4116 / KN4132's OSD Main Page. For a description of the OSD Main Page, see page 41.

   > **Note:** If you supply an invalid login, the authentication routine will return a *Login Failed* message. If you see this message, log in again being careful with the Username and Password.

Windows Client AP Login

In some cases, the Administrator may not want the KN2132 / KN4116 / KN4132 to be available via browser access. The Windows AP Client allows direct remote access to Windows systems users, without having to go through a browser.

You initially download the Windows AP Client program from the browser page (see Chapter 10, *Download*). To connect to the KN2132 / KN4116 / KN4132, go to the location on your hard disk that you downloaded the Windows AP Client program to, and double-click its icon (WinClient.exe) to bring up the Windows Client Connection Screen:
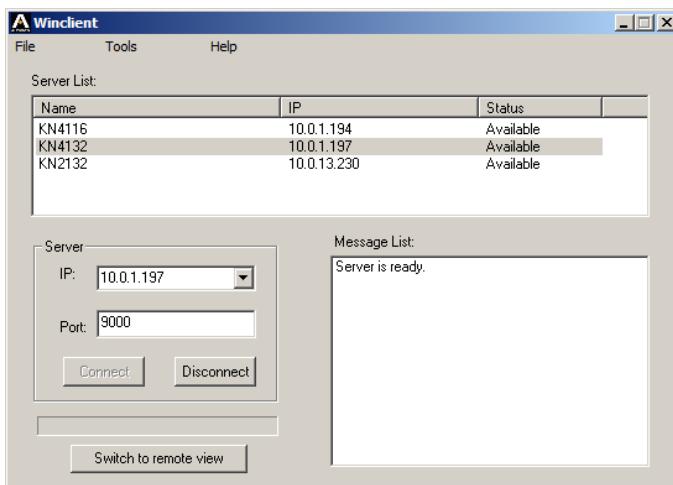
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The Connection Screen

A description of the Connection Screen is given in the following table:

Item	Description
Menu Bar	The Menu Bar contains three items: File, Tools, and Help.
	◆ The *File Menu* allows the operator to Create, Save, and Open user created Work files (see *The File Menu*, page 35).
	◆ At first, the *Tools Menu* contains one entry: *Hotkey Setup* (see *Hotkey Setup*, page 36); but once a connection to the KN2132 / KN4116 / KN4132 has been established, a second entry, *Control Panel*, appears. Control Panel provides a dialog box that allows you to configure the look of the Control Panel, as well as its graphical settings (see *Control Panel Configuration*, page 37, for details).
Server List	Each time the WinClient.exe file is run, it searches the User's local LAN segment for KN2132 / KN4116 / KN4132 units, and lists whichever ones it finds in this box. If you want to connect to one of these units, **double-click** it.
	Note: Only units whose Access Port settings for *Program* (see page 106) match the number specified for *Port* in the Server area of this dialog box appear in the Server List window.
Server	This area is used when you want to connect to a KN2132 / KN4116 / KN4132 at a remote location. You can drop down the IP list box and select an address from the list. If the address you want isn't listed, you can key in the target IP address in the IP field, and its port number in the Port field. (If you don't know the port number, contact your Administrator.)
	◆ When the IP address and Port number have been specified, click Connect to bring up a login dialog box. Provide your Username and Password then click **OK** to bring up the OSD Main Page. For a description of the OSD Main Page, see page 41.
	◆ When you have finished with your session, click **Disconnect** to end the connection.
Message List	Lists status messages regarding the connection to the KN2132 / KN4116 / KN4132.
Switch to Remote View	Once a connection with a KN2132 / KN4116 / KN4132 has been established, this button becomes active. Click it to switch to the KN2132 / KN4116 / KN4132's Main OSD Page. The Main OSD Page is described on page 41.

The File Menu

The *File Menu* allows the operator to Create, Save, and Open user created Work files. A Work File consists of all the information specified in a Client session. This includes the Server List and Server IP list items, as well as the Hotkey settings.

Whenever a user runs the Client program, it opens with the values contained in the *current work file*. The current work file consists of the values that were in effect the last time the program was closed.

The File menu consists of three items, as follows:

New	Allows the user to create a named work file so its values will not be lost, and it will be available for future recall.
Open	Allows the user to open a previously saved work file and use the values contained in it.
Save	Allows the user to save the values presently in effect as the *current work file*.

The Tools Menu

Tools menu operations are performed after you connect to the KN2132 / KN4116 / KN4132, but before you switch to remote view. There are two entries on the Tools Menu: *Hotkey Setup*, and *Control Panel*. Hotkey Setup is explained in the next section. *Control Panel Configuration* is explained on page 37.

Hotkey Setup

Various actions related to manipulating the remote server can be accomplished with hotkeys. The *Hotkey Setup* utility lets you configure which hotkeys perform the actions. The actions are listed in the left panel; the hotkeys that invoke them are shown in the panel at the right.
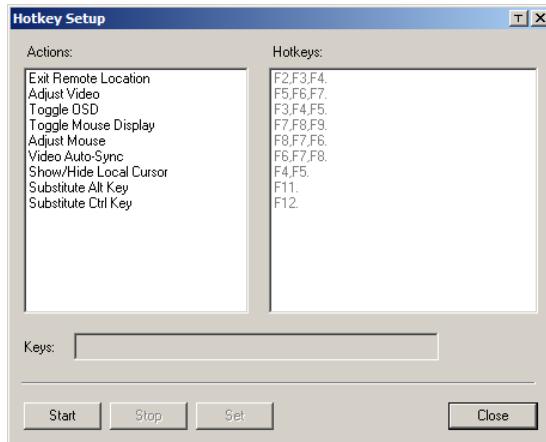
For further details regarding this dialog box, see *Hotkey Setup*, page 46.

Control Panel Configuration

Once a connection to the KN2132 / KN4116 / KN4132 has been established, a *Control Panel* entry appears on the Connection Screen's Tools menu. Click the menu item to bring up a dialog box that allows you to configure the items that appear on the Control Panel, as well as its graphical settings:
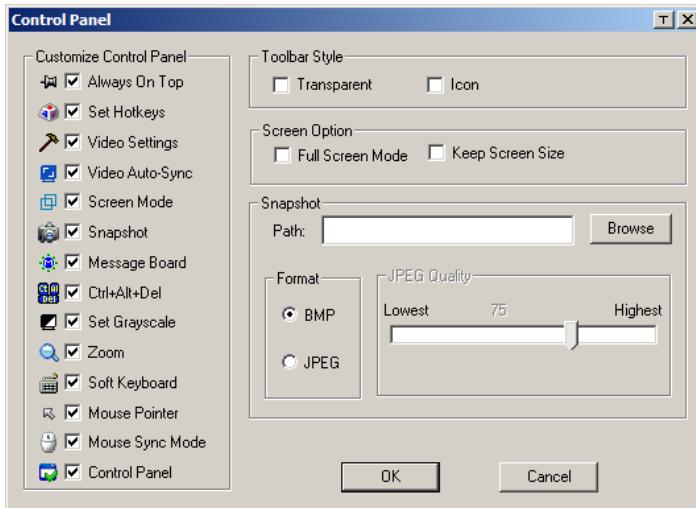
The dialog box is organized into four main sections: Customize, Style, Screen Options, and Snapshot. Each section is described in the table, below:

Item	Description
Customize Control Panel	Allows you to select which icons display in the Control Panel
Toolbar Style	◆ Enabling *Transparent* makes the Control Panel semi-transparent, so that you can see through it to the display underneath. ◆ Enabling *Icon* causes the Control Panel to display as an icon until you mouse over it. When you mouse over the icon, the full panel comes up.

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Item	Description
Screen Options	◆ If *Full Screen Mode* is enabled, the remote display fills the entire screen.
	◆ If *Full Screen Mode* is not enabled, the remote display appears as a window on the local desktop. If the remote screen is larger than what is able to fit in the window, move the mouse pointer to the screen border that is closest to the area you want to view and the screen will scroll.
	◆ If *Keep Screen Size* is enabled, the remote screen is not resized.
	◆ If the remote resolution is smaller than that of the local monitor, its display appears like a window centered on the screen.
	◆ If the remote resolution is larger than that of the local monitor, its display is centered on the screen. To access the areas that are off screen, move the mouse to the corner of the screen that is closest to the area you want to view and the screen will scroll.
	◆ If *Keep Screen Size* is not enabled, the remote screen is resized to fit the local monitor's resolution.
Snapshot	These settings let the user configure the KN2132 / KN4116 / KN4132's screen capture parameters (see the *Snapshot* description under *The Control Panel*, page 43):
	◆ Path lets you select a directory that the captured screens automatically get saved to. Click **Browse**; navigate to the directory of your choice; then click **OK**.
	◆ Click a radio button to choose whether you want the captured screen to be saved as a BMP or a JPEG (JPG) file.
	◆ If you choose JPEG, you can select the quality of the captured file with the slider bar. The higher the quality, the better looking the image, but the larger the file size.

Java Client AP Login

In those cases in which the Administrator does not want the KN2132 / KN4116 / KN4132 to be available via browser access, but the remote users aren't running Windows, the Java AP Client provides direct remote access to non-Windows systems users.

You initially download the Java AP Client program from the browser page (see Chapter 10, *Download*). To connect to the KN2132 / KN4116 / KN4132, go to the location on your hard disk that you downloaded the Java AP Client program to, and double-click its icon (JavaClient.jar) to bring up the *Address Input* dialog box:

1. Key in the IP address for the unit you want to connect to.

   For security purposes, a login string may have been set by the administrator. If a login string has been set, a forward slash followed by the login string must be specified as part of the IP address. For example:

   ```
   192.168.0.132/abcdefg
   ```

   Note: The system administrator may change the string from time to time to thwart unauthorized access attempts. Be sure you have the correct string when you attempt to connect.

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2. Click **OK**. A *Login* dialog box appears:

3. Provide a valid Username and Password, and then click **OK** to switch to the KN2132 / KN4116 / KN4132's OSD Main Page. For a description of the OSD Main Page, see page 41.

The OSD Main Page

Overview

After you have successfully logged in, the KN2132 / KN4116 / KN4132 Main OSD Page appears. This chapter describes the OSD Main Page elements

The Main OSD Page

When the OSD comes up, the *Port Access* page is displayed. There is an icon bar across the top of the page, as well as a hidden *Control Panel* at the upper or lower center of the screen that becomes visible when you mouse over it:
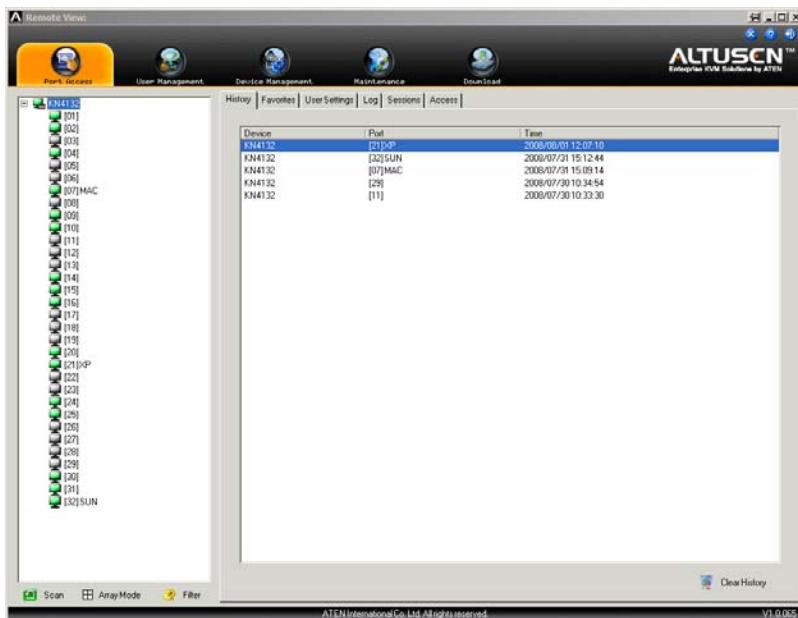
Note: 1. The screen shown above depicts a Super Administrator's page. Depending on your user type and permissions, some of these elements will not appear on your OSD Main Page.

2. When logging in from the Local Console, the *Maintenance* and *Download* icons do not appear, and *Array Mode* is not available (it is grayed out).

OSD Icon Bar

The number and type of icons that appear on the icon bar at the top of the page are determined by the user's type (Super Administrator, Administrator, User) and the permissions assigned when the user's account was created.The functions associated with each of the icons are explained in the table below:

Icon	Function
Port Access	**Port Access:** The Port Access page is used to access and control the devices on the KN2132 / KN4116 / KN4132 installation. This page is available to all users.
User Management	**User Management:** The User Management page is used to create and manage Users and Groups. It can also be used to assign devices to them. User Management is discussed on page 79. This page is available to the Super Administrator and Administrators. The icon doesn't display on the page of ordinary users.
Device Management	**Device Management:** The Device Management page is used by the Super Administrator (and Administrators and Users with Configuration permission), to configure and control the overall operation of the KN2132 / KN4116 / KN4132. This page is available to the Super Administrator. The icon doesn't display on the page of ordinary administrators and users.
Maintenance	**Maintenance:** The Maintenance page is used this icon to install new versions of the KN2132 / KN4116 / KN4132's firmware. See *Upgrading the Firmware*, page 115, for details. This page is available to the Super Administrator (and Administrators and Users with Configuration permission). The icon doesn't display on the page of ordinary administrators and users.
Download	**Download:** Users with appropriate permission can click this icon to download AP versions of the Windows Client; the Java Client; the Log Server; and the PON program. This page is available to all users. The programs that can be downloaded depend on the user's permissions.

There are three small icons at the extreme right of the page. Their functions are described in the table, below:

Icon	Function
X	Click this icon to close the OSD page and go to the display of the the last selected port.
?	Click this icon to brings up a panel with information about the KN2132 / KN4116 / KN4132's firmware version.
log out	Click this icon to log out and end your KN2132 / KN4116 / KN4132 session.

The Control Panel

The Control Panel consists of three rows: a row of icons at the top, with two text rows below it.

Ordinarily, the top text row shows the video resolution of the remote display, while the lower row shows the IP address of the device at the remote location at the left and the number of the bus that the logged in user is on in the center. As the mouse pointer moves over the icons in the icon bar, however, the text bar information changes to describe the icon's function.

To move the Control Panel to a different location on the screen, place the mouse pointer over the text bar area, then click and drag.

Note: 1. The above image shows the complete Control Panel. The icons that appear can be customized from the Connection Screen that comes up when you log in with the Windows AP program. See *Control Panel Configuration*, page 37, for details.

2. Refer to the Note on page 129 for further information regarding the KN2132 / KN4116 / KN4132's bus assignments.

3. Right clicking in the text row area brings up a menu that allows you to select options for the *Screen Mode*, *Zoom*, *Mouse Pointer* type, and *Mouse Sync Mode*:
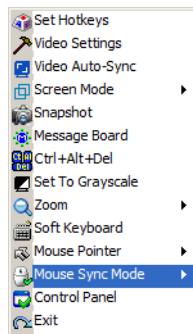
Control Panel Functions

The Control Panel functions are described in the table below.

Icon	Function
	This is a toggle. Click to make the Control Panel persistent – i.e., it always displays on top of other screen elements. Click again to have it display normally.
	Click to bring up the Hotkey Setup dialog box (see page 46 for details). **Note:** This item is only available with the Windows Client AP version.
	Click to bring up the Video Options dialog box. Right-click to perform a quick Auto Sync (see *Video Settings*, page 48, for details).
	Click to perform a video and mouse autosync operation. It is the same as clicking the Auto-sync button in the *Video Options* dialog box (see *Video Settings*, page 48).
	Left click to toggle *Full Screen Mode* on and off. Right click to toggle *Keep Screen Size* on and off. See *Control Panel Configuration*, page 37, for details.
	Click to take a snapshot (screen capture) of the remote display. See *Snapshot*, page 38, for details on configuring the Snapshot parameters.
	Click to bring up the Message Board (see *The Message Board*, page 51).
	Click to send a Ctrl+Alt+Del signal to the remote system.
	Click to toggle the remote display between color and gray scale.
	Click to zoom the remote display window. **Note:** This feature is only available in windowed mode (Full Screen Mode is off).

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Icon	Function
	Click to bring up the on-screen keyboard (see *The On-Screen Keyboard*, page 54).
	Click to select the mouse pointer type. **Note:** This icon changes depending on which mouse pointer type is selected (see *Mouse Pointer Type*, page 55).
	Click to toggle Automatic or Manual mouse sync. ◆ When the selection is *Automatic*, a green √ appears on the icon. ◆ When the selection is *Manual*, a red X appears on the icon. See *Mouse DynaSync Mode*, page 56 for a complete explanation of this feature.
	Click to bring up the OSD Configuration dialog box. See *Control Panel Configuration*, page 37, for details on configuring the Control Panel.
	Click to exit the remote view.
	These Lock Key LEDs show the Num Lock, Caps Lock, and Scroll Lock status of the remote computer. Click on the icon to toggle the status. **Note:** When you first connect, the LED display may not be accurate. To be sure, click on the LEDs to set them.

Hotkey Setup

Various actions related to manipulating the remote server can be accomplished with hotkeys. The *Hotkey Setup* utility (accessed by clicking this icon), lets you configure which hotkeys perform the actions.

Note: This feature is only available with the Windows Client AP version.

The actions are listed in the left panel; the hotkeys that invoke them are shown in the panel at the right.
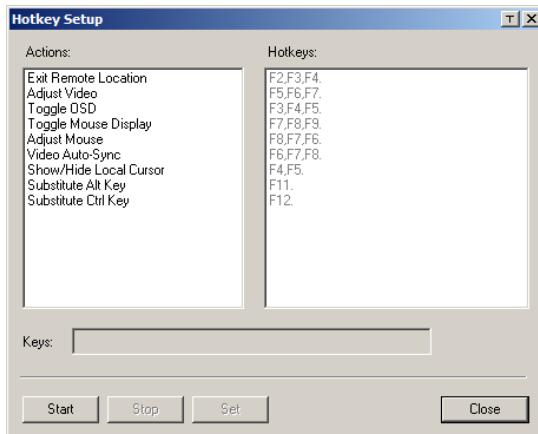
If you find the default Hotkey combinations inconvenient, you can reconfigure them as follows:

1. Highlight the *Action*, then click **Start**.

2. Key in the Function keys (one at a time). The key names appear in the *Key* field as you press them.

3. When you have finished keying in your sequence, click **Stop**.

4. Click **Set**.

5. Click **Close**.

Note: You can use the same function keys for more than one action, *as long as the first key is not the same*. For example, you can use **F1 F2 F3** for one action; **F2 F1 F3** for another; **F3 F2 F1** for a third, etc.

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An explanation of the Hotkey actions is given in the table below:

Action	Explanation
Exit remote location	Breaks the connection to the KN2132 / KN4116 / KN4132 and returns you to local operation.
Adjust Video	Brings up the video adjustment utility.
Toggle OSD	Toggles the OSD display Off and On.
Toggle mouse display	If you find the display of the two mouse pointers (local and remote) to be confusing or annoying, you can use this function to shrink the non-functioning pointer down to a barely-noticeable tiny circle - which can be ignored. Since this function is a toggle - use the hotkeys again to bring the mouse display back to its original configuration. **Note:** This has the same effect as selecting the Dot pointer type from the Control Panel (see *Mouse Pointer Type*, page 55).
Adjust mouse	This utility synchronizes the local and remote mouse movements following a video resolution change. After invoking this utility, simply click the local mouse pointer on top of the remote mouse pointer.
Video Auto-sync	This combination performs an auto-sync operation. It is the same as clicking the Auto-sync button in the *Video Options* dialog box (see *Video Settings*, page 48).
Show/Hide Local Cursor	Toggles the display of your local mouse pointer off and on.
Substitute Alt key	Although all other keyboard input is captured and sent to the KN2132 / KN4116 / KN4132, [Alt + Tab] and [Ctrl + Alt + Del] work on your local computer. In order to implement their effects on the remote system, another key may be substituted for the Alt key. If you substitute the F12 key, for example, you would use [F12 + Tab] and [Ctrl + F12 + Del].
Substitute Ctrl key	If your local computer captures Ctrl key combinations, preventing them from being sent to the remote system, you can implement their effects on the remote system by specifying a function key to substitute for the Ctrl key. If you substitute the F11 key, for example, pressing [F11 + 5] would appear to the remote system as [Ctrl + 5].

Note: To invoke an action, you must press and release the keys one key at a time.

Video Settings

Clicking the *Hammer* icon on the Control Panel brings up the *Video Settings* dialog box. The options in this dialog box allow you to adjust the placement and picture quality of the remote screen on your monitor:
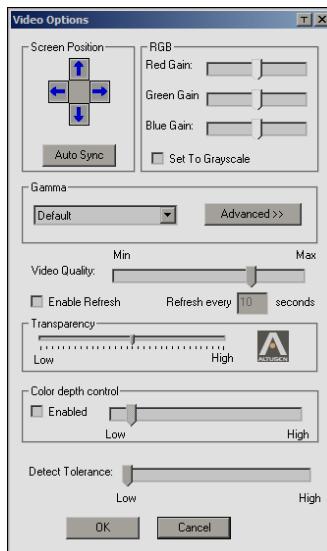
The meanings of the video adjustment options are given in the table below:

Option	Usage
Screen Position	Adjust the horizontal and vertical position of the remote computer window by Clicking the Arrow buttons.
Auto-Sync	Click Auto-Sync to have the vertical and horizontal offset values of the remote screen detected and automatically synchronized with the local screen.
	Note: 1. If the local and remote mouse pointers are out of sync, in most cases, performing this function will bring them back into sync.
	2. This function works best with a bright screen.
	3. If you are not satisfied with the results, use the Screen Position arrows to position the remote display manually.
RGB	Drag the slider bars to adjust the RGB (Red, Green, Blue) values. When an RGB value is increased, the RGB component of the image is correspondingly increased.
	If you enable *Set to Grayscale*, the remote video display is changed to grayscale.

(Continued from previous page.):

Option	Usage
Gamma	This section allows you to adjust the video display's gamma level. This function is discussed in detail in the next section, *Gamma Adjustment*.
Video Quality	Drag the slider bar to adjust the overall Video Quality. The larger the value, the clearer the picture and the more video data goes through the network. Depending on the network bandwidth, a high value may adversely effect response time.
Enable Refresh	The KN2132 / KN4116 / KN4132 can redraw the screen every 1 to 99 seconds, eliminating unwanted artifacts from the screen. Select **Enable Refresh** and enter a number from 1 through 99. The KN2132 / KN4116 / KN4132 will redraw the screen at the interval you specify. This feature is disabled by default. Click to put a check mark in the box next to *Enable Refresh* to enable this feature. **Note:** Enabling this feature increases the volume of video data transmitted over the network. The lower the number specified, the more often the video data is transmitted. Setting too low a value may adversely affect overall operating responsiveness.
Transparency	Adjusts the transparency of the Control Panel and various Toolbars provided by the OSD. Slide the bar until the display in the example window is to your liking.
Color Depth Control	This setting determines the richness of the video display by adjusting the amount of color information for the video data.
Detect Tolerance	This setting also relates to video quality. It sets a threshold for filtering out undesired screen artifacts. **Note:** 1. Setting the threshold too high, may filter out desired screen changes. 2. Setting the threshold too low may allow unwanted artifacts to display – as well as increase the amount of video data transmitted over the network.

Gamma Adjustment

If it is necessary to correct the gamma level for the remote video display, use the *Gamma* function of the Video Adjustment dialog box.

◆ Under *Basic* configuration, there are ten preset and four user-defined levels to choose from. Drop down the list box and choose the most suitable one.

◆ For greater control, clicking the *Advanced* button brings up the following dialog box:

◆
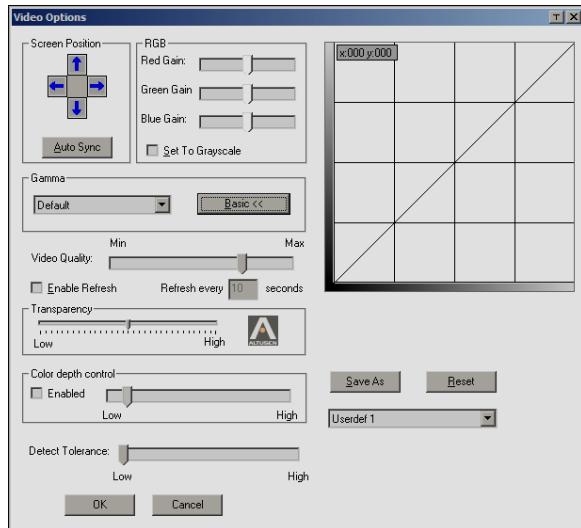
◆ Click and drag the diagonal line at as many points as you wish to achieve the display output you desire.

◆ Click **Save As** to save up to four user-defined configurations derived from this method. Saved configurations can be recalled from the list box at a future time.

◆ Click **Reset** to abandon any changes and return the gamma line to its original diagonal position.

◆ Click **OK** to save your changes and close the dialog box.

◆ Click **Cancel** to abandon your changes and close the dialog box.

Note: For best results, change the gamma while viewing a remote computer.

The Message Board

The KN2132 / KN4116 / KN4132 supports multiple user logins, which can possibly give rise to access conflicts. To alleviate this problem, a message board feature has been provided, allowing users to communicate with each other:
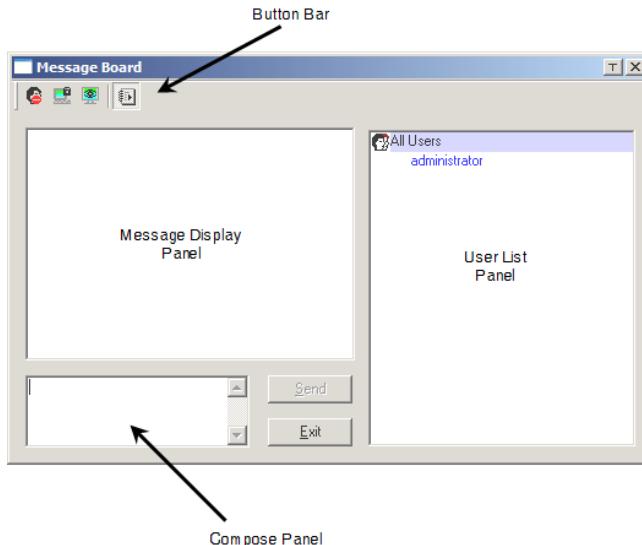
The Button Bar

The buttons on the Button Bar are toggles. Their actions are described in the table below:

Button	Action
	Enable/Disable Chat. When disabled, messages posted to the board are not displayed. The button is shadowed when Chat is disabled. The icon displays next to the user's name in the User List panel when the user has disabled Chat.
	Occupy/Release Keyboard/Video/Mouse. When a port is set to *Occupy* mode (see *Access Mode*, page 64), you can use this button to occupy the KVM. When you Occupy the KVM, other users cannot see the video, and cannot input keyboard or mouse data. The button is shadowed when the KVM is occupied. The icon displays next to the user's name in the User List panel when the user has occupied the KVM.
	Occupy/Release Keyboard/Mouse. When a port is set to *Occupy* mode (see *Access Mode*, page 64), you can use this button to occupy the KM. When you Occupy the KM, other users can see the video, but cannot input keyboard or mouse data. The button is shadowed when the KM is occupied. The icon displays next to the user's name in the User List panel when the user has occupied the KM.
	Show/Hide User List. When you Hide the User List, the User List panel closes. The button is shadowed when the User List is open.

Message Display Panel

Messages that users post to the board - as well as system messages - display in this panel. If you disable Chat, however, messages that get posted to the board won't appear.

Compose Panel

Key in the messages that you want to post to the board in this panel. Click **Send**, or press [**Enter**] to post the message to the board.

User List Panel

The names of all the logged in users are listed in this panel.

◆ Your name appears in blue; other users' names appear in black.

◆ By default, messages are posted to all users. To post a message to one individual user, select the user's name before sending your message.

◆ If a user's name is selected, and you want to post a message to all users, select All Users before sending your message.

◆ If a user has disabled Chat, its icon displays before the user's name to indicate so.

◆ If a user has occupied the KVM or the KM, its icon displays before the user's name to indicate so.
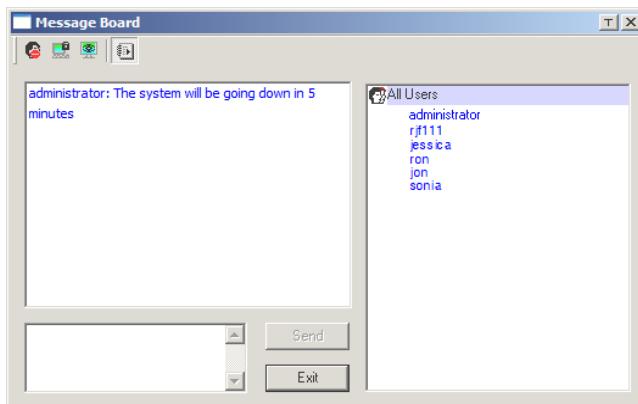
The On-Screen Keyboard

The KN2132 / KN4116 / KN4132 supports an on-screen keyboard, available in multiple languages, with all the standard keys for each supported language. Click this icon to pop up the on-screen keyboard:
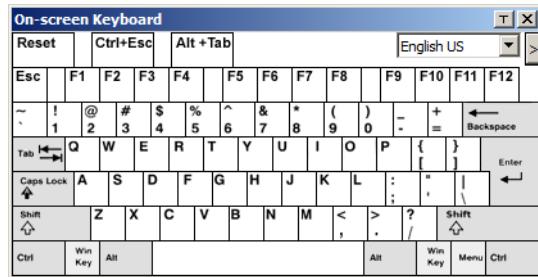
One of the major advantages of the on-screen keyboard is that if the keyboard languages of the remote and local systems aren't the same, you don't have to change the configuration settings for either system. The user just has to bring up the on-screen keyboard; select the language used by the system he is accessing; and use the on-screen keyboard to communicate with it.

To change languages, do the following:

1. Click the down arrow next to the currently selected language, to drop down the language list.
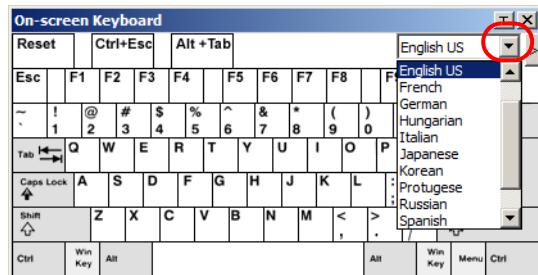
2. Select the new language from the list.

To display/hide the expanded keyboard keys, click the arrow to the right of the language list arrow.
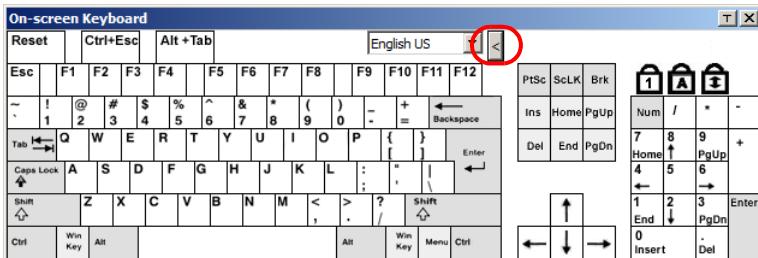
Mouse Pointer Type

The KN2132 / KN4116 / KN4132 offers a number of mouse pointer options when working in the remote display. Click this icon to select from the available choices:

Note: 1. The icon on the Control Panel changes to match your choice.

2. The *Dot* mouse pointer is only available with the Windows Client AP version. Selecting the Dot pointer has the same effect as the *Toggle mouse display* hotkey function (see *Toggle mouse display*, page 47, for details).

Mouse DynaSync Mode

Synchronization of the local and remote mouse pointers is accomplished either automatically or manually.

Automatic Mouse Synchronization (DynaSync)

Mouse DynaSync provides automatic locked-in synching of the remote and local mouse pointers – eliminating the need to constantly resync the two movements.

Note: This feature is only available for Windows and Mac systems (G4 and higher) connected to the KN2132 / KN4116 / KN4132 with a KA9170 KVM Adapter, and whose adapter attribute OS setting is configured for Win or Mac (see *Port Properties*, page 63). All other configurations must use manual mouse synchronization (described in the next section).

The icon on the toolbar indicates the synchronization mode status as follows:

Icon	Function
	Mouse DynaSync is not available – you must use manual synching procedures. This is the default setting for all KVM Adapters other than the KA9170.
	Mouse DynaSync is available and is enabled. This is the default setting when Mouse DynaSync is available. (See the Note, above.)
	Mouse DynaSync is available but is not enabled.

When *Mouse DynaSync* is available, click the icon to toggle its enabled/disabled status.

Note: If you choose to disable Mouse DynaSync mode, you must use the manual synching procedures described in the next section.

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Note: For Mac systems, there are two automatic settings to choose from. If mouse synchronization is not satisfactory with the default, try the Mac 2 setting.

To select Mac 2, right click in the text area of the Control Panel and select *Mouse Sync Mode → Automatic for Mac 2*:
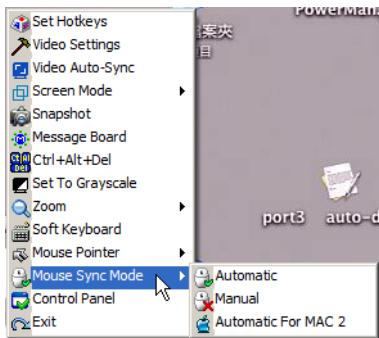
Manual Mouse Synchronization

If the local mouse pointer goes out of sync with the remote system's mouse pointer there are a number of methods to bring them back into sync:

1. Perform a video and mouse auto sync by clicking the *Video Adjust* icon on the Control Panel (see page 44).

2. Perform an *Auto Sync* with the Video Adjustment function (see *Video Settings*, page 48, for details).

3. Invoke the *Adjust Mouse* function with the *Adjust Mouse* hotkeys (see *Adjust mouse*, page 47, for details).

4. Move the pointer into all 4 corners of the screen (in any order).

5. Drag the Control Panel to a different position on the screen.

6. Set the mouse speed and acceleration for each problematic computer attached to the switch. See *Additional Mouse Synchronization Procedures*, page 165, for instructions.

OSD Hotkeys

A means of navigating the OSD from the keyboard is provided via the KN2132 / KN4116 / KN4132's OSD hotkey function. The operations performed by the OSD hotkeys are shown in the table, below:

Hotkey	Operation
Ctrl + P	Opens the *Port Access* page.
Ctrl + U	Opens the *User Management* page.
Ctrl + C	Opens the *Device Management* page.
Ctrl + F	Opens the *Maintenance* page.
Ctrl + D	Opens the *Download* page.
F1	Brings up the *About* window.
F2	Opens the selected port's name input box for port name editing.
F4	Selects the left panel.
F5	Selects the right panel.
F7	Closes the OSD.
F8	Closes the OSD and logs you out of the session.
→	In the right panel, it moves the tab focus one step to the right.
←	In the right panel, it moves the tab focus one step to the left.
↑	◆ In the right panel, it moves the tab focus one step to the right. ◆ In the left panel, it moves the port selection up one port.
↓	◆ In the right panel, it moves the tab focus one step to the left. ◆ In the left panel, it moves the port selection down one port.
Esc	Exits the current screen and returns you to the previously selected screen.

Port Access

Overview

When you log in to the KN2132 / KN4116 / KN4132, the OSD comes up with
the Port Access page displayed.
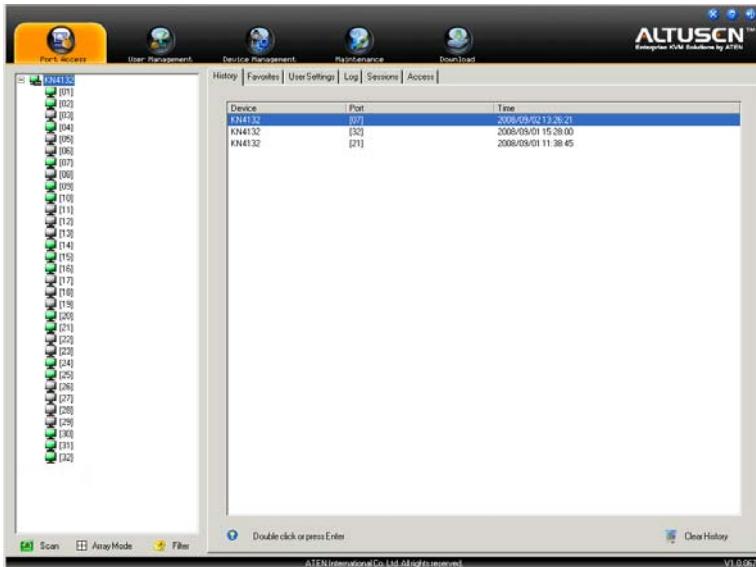
The page is organized into two main areas. All the ports that a user is permitted
to access are listed in the Port Selection panel at the left of the page. The larger
panel at the right is represented as a tabbed notebook. It provides information
and configuration options related to port manipulation. The following section
discusses the Port Selection column; the information and configuration
notebook is discussed on page 67.

The Port Selection Panel

All switches and their ports – including cascaded switches and their ports – are listed in a tree structure in the panel at the left of the screen:
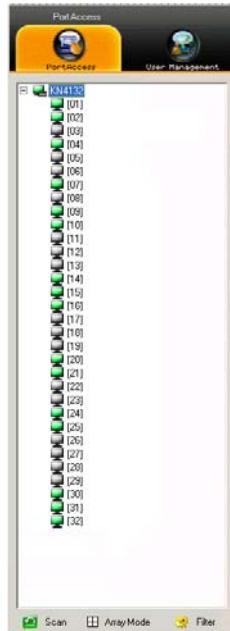
The Port Selection List

◆ Users only see the switches and ports that they have access permission for.

◆ Ports and child switches can be nested under their parent switches.

  ◆ Click the + in front of a switch to expand the tree and see the ports nested underneath it.

  ◆ When the ports are displayed, there is a - before the device name. Click the **-** to collapse the tree and hide the nested ports.

◆ A port's ID number is displayed in brackets next to the port icon. For convenience the ports can be named (see *Port Naming*, page 62, for details).

◆ Switches and ports that are on line have their monitor screen icons lit green; the monitor screens are gray for devices and ports that are offline.

◆ To access a port, double click its icon. Port operation details are discussed in Chapter 11, *Port Operation*.

Port Configuration

To configure a switch or port right click its icon. A list with various options pops up. The items on the list vary depending on your user type, and whether you selected a switch or a port. The screenshot below, shows the available items:

```
Collapse

Rename

Properties

Export Configuration

Import Configuration
```
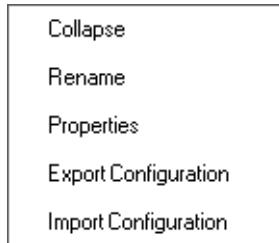
The meanings of the configuration items are explained in the following table:

Item	User Type	Explanation
Expand/Collapse	Administrators Users	♦ If the device's ports are nested (not displayed), the dialog box entry is *Expand*. Click **Expand** to open the tree and display the ports. ♦ If the device's ports are displayed, the dialog box entry is *Collapse*. Click **Collapse** to nest the ports. **Note:** 1. This item only appears for switches or ports that have child devices connected to them. 2. This has the same effect as clicking the **+** or **-** in the tree view.
Rename	Administrators Users	For convenience – especially in large installations with many switches and ports – each switch and each port can be given a name. See *Port Naming*, page 62, for details.
Properties	Administrators	This item allows you to configure the properties for a switch or port. ♦ For switches, clicking this item takes you to the Device Management page. Chapter 8, *Device Management*, for configuration details. ♦ For ports, a dialog box opens allowing you to make configuration settings for that port. See *Port Properties*, page 63, for details.

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Item	User Type	Explanation
Export Configuration	Administrators	This item is only available for switches. It allows you to save the configuration settings for the switch in an external file (*SysConfig.cfg*). Simply click **Export Config**; browse to where you want to save the file; then click **Save**.
Import Configuration	Administrators	This item is only available for switches. It imports previously saved configuration settings. Click **Import Config**. In the dialog box that comes up, browse to where the saved configuration file is located; select the setting components you wish to import; then click **Import**.

Port Naming

For convenience – especially in large installations with many switches and ports – each switch and each port can be given a name. To assign, modify or delete a port name, do the following:

1. Click once on the port you want to edit, wait one second and then click again.

> **Note:** This is not a double-click. It involves two separate clicks. A double-click will switch you to the device attached to the port.

– or –

Right click on the port you want to edit, then select **Rename** in the popup box that appears.

– or –

Press **F2**

After a second or two, the display changes to provide a text input box:

2. Key in a name for the port (or change/delete a previous one). The maximum number of characters allowed for a port name is 19. You can use any combination of letters, numbers, and symbols on the typewriter keys of keyboards with PC US English layout.

3. When you have finished editing the port name, press [Enter] or click anywhere outside of the input box to complete the operation.

Port Properties

Right clicking a port and selecting **Properties** in the popup box that appears opens the *Port Properties* dialog box:
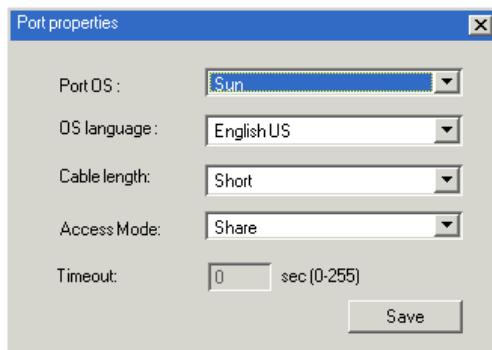
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The Port Properties dialog box allows you to make configuration settings for the selected port. An explanation of the configuration fields is given in the table, below:

Field	Explanation
Port OS	Specifies the operating system that the computer on the connected port is using. Choices are Win, Mac, Sun, and Other. The default is Win.
OS Language	Specifies the OS language being used by the computer on the connected port. Drop down the list to see the available choices. The default is English US.
Cable Length	Specifies the length of the Cat5e cable that is used to connect the computer to the port. Choices are Short (less than 10 m), Medium (10–25 m), and Long (greater than 25 m). The default is Short.
	Note: Cable length can affect video quality. Generally speaking, shorter cables offer better quality. This setting is designed to compensate for longer or shorter cable lengths. You can experiment to find the setting that best suits your connection.
Access Mode	Defines how the port is to be accessed when multiple users have logged on, as follows:
	Defines how the port is to be accessed when multiple users have logged on, as follows:
	Exclusive: The first user to switch to the port has exclusive control over the port. No other users can view the port. The *Timeout* function does not apply to ports which have this setting.
	Occupy: The first user to switch to the port has control over the port. However, additional users may view the port's video display. If the user who controls the port is inactive for longer than the time set in the *Timeout* box, port control is transferred to the next user to move the mouse or strike the keyboard.
	Share: Users simultaneously share control over the port. Input from the users is placed in a queue and executed chronologically. Under these circumstances, users can take advantage of the *Message Board*, which allows a user to take control of the keyboard and mouse or keyboard, mouse, and video of a Share port (see *The Message Board*, page 51).

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Field	Explanation
Timeout	This field sets a time threshold for users on ports whose Access Mode has been set to *Occupy* (see *Access Mode* – above, in this table). If there is no activity from the user occupying the port for the amount of time set here, the user is timed out and the port is released. The first user to send keyboard or mouse input after the port has been released gets to occupy the port.
	Input a value from 0 to 255 seconds. The default is 3 seconds. A setting of 0 causes the port to be released the instant there is no input.

After making your configuration choices, click **Save** to save your new settings and close the dialog box.

Scan

The *Scan* function automatically switches among all the ports that are accessible to the currently logged on user at regular intervals, so that their activity can be monitored automatically. See *Auto Scanning*, page 124 for details.

Array

Array represents another way of monitoring port activity. Under this function your screen is divided into a grid of panels, with each panel representing. Only ports that are accessible to the currently logged on user and that are on line are displayed – all other ports are blank. See *Panel Array Mode*, page 127, for details.

Filter

Filter allows you to control the number and type of ports that display in the Port Selection List, as well as which ports get scanned when Auto Scan Mode is invoked (see *Scan*, page 65). When you click *Filter*, the bottom of the panel changes to look similar to the figure, below:
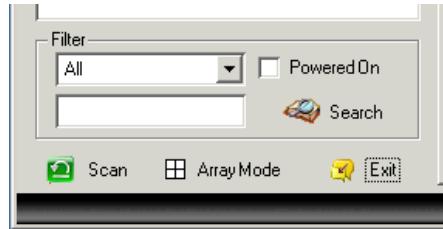
- ◆ *All* – with no other filter options selected, lists all of the ports on the installation.

- ◆ Putting a check mark in the *Powered On* checkbox lists only the ports that have their attached devices powered on.

- ◆ The text input box and *Search* button allows you to key in a a search string so that only port names that match what you key in show up in the List. Wildcards (? and *) are acceptable, so that more than one port can show up in the list. For example, if you key in **Web***, both Web Server 1 and Web Server 2 show up in the list.

The Information and Configuration Notebook

The larger panel at the right of the Port Access Main Page is represented as a tabbed notebook:
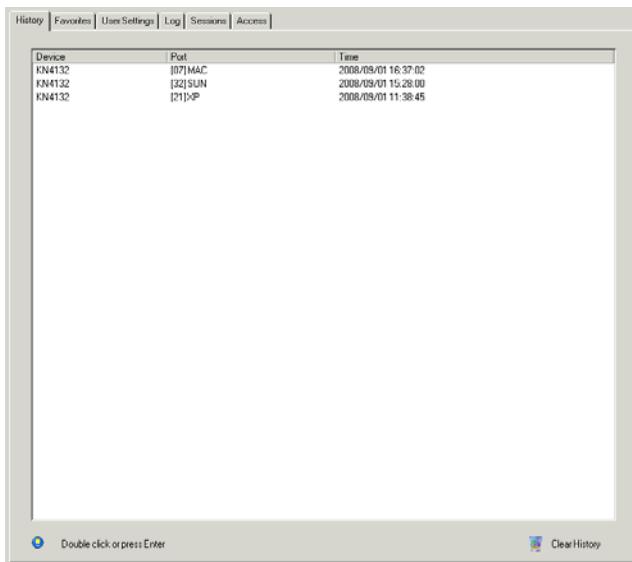
Click a tab to open its related page. This section discusses each of the pages.

History

The History page (shown above) provides a record of each time that a port was accessed.

◆ If there are more entries than there is room on the screen, a scroll bar appears to let you scroll up and down to see the entire record.

◆ To clear the record and start over, click the *Clear History* button at the bottom right corner of the page.

Note: You can access a port by double clicking it, or highlighting it and pressing **Enter**.

Favorites

This is similar to a *Bookmarks* feature. Ports that you frequently visit can be saved in a list here. Simply open this page and select the port – rather than hunting for it in the port tree. This feature is especially handy on large, crowded installations.

Adding a Favorite

To add a port to the bookmarks, do the following:

1. Right click in the main panel; click **Add Favorite**.

   An *Untitled Favorite* entry is appears at the top of the panel.
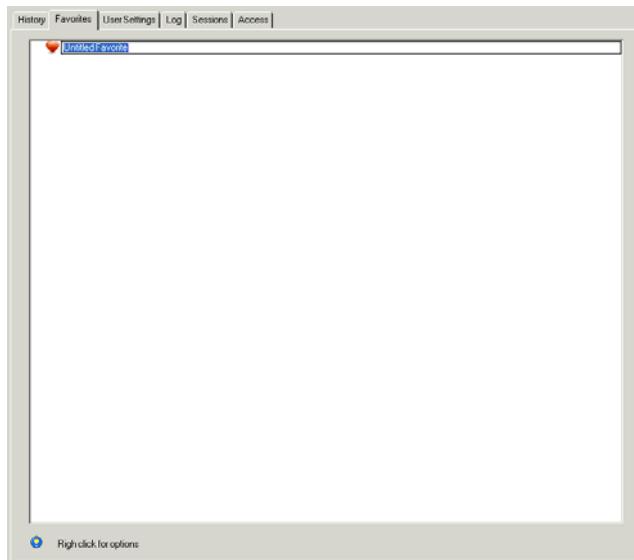
   This will be a container to hold your port entries, so you will want to give it an appropriate name.

2. Click inside the text entry box to erase *Untitled Favorite* and key in an appropriate name.

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3. To add a port:

   Drag it from the Port Select list and drop it onto the container

   – or –

   Right click on it; select **Copy**. Right click on the container; select **Paste**.

   The switch that the port belongs to is added to the container; the selected port is appended under the switch.

Note:	To add multiple ports at the same time, hold the Shift or Ctrl key down while you make your selections then drag or copy the entire group to the Favorites panel.

4. Repeat step 3 for any other *Favorite* categories you wish to create
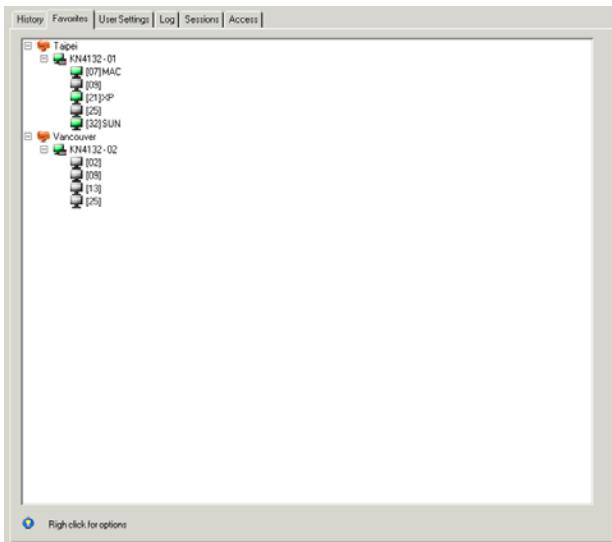
Modifying a Favorite

◆ To modify a Favorite, or one of the items contained in it, right click on it, then select a choice from the popup menu that appears.

◆ To simply edit a Favorite's name, click on it once, wait a second, then click again. You can edit the name after the display changes to provide a text input box, This is the same procedure as the one described for port naming (see *Port Naming*, page 62).

User Settings

The *User Settings* page allows users to set up their own, individual, working environments. The KN2132 / KN4116 / KN4132 stores a separate configuration record for each user profile, and sets up the working configuration according to the *Username* that was keyed into the Login dialog box:
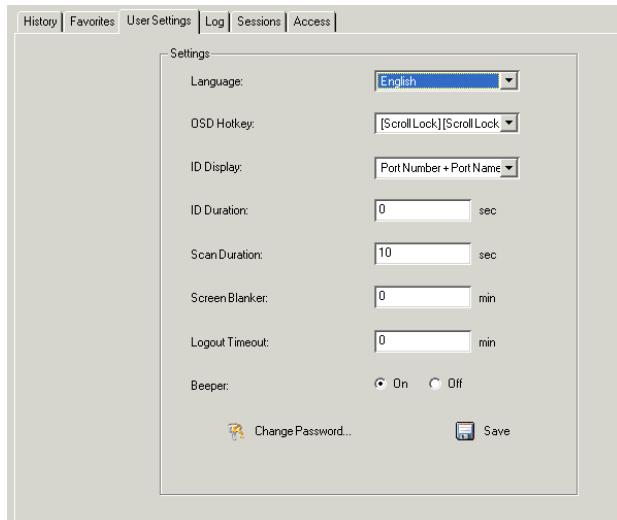
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The page settings are explained in the following table:

| Setting	Function
Language	Selects the language that the OSD displays in.
OSD Hotkey	Selects which Hotkey controls the OSD function: [Scroll Lock] [Scroll Lock], or [Ctrl] [Ctrl]. Since the Ctrl key combination may conflict with programs running on the computers, the default is the Scroll Lock combination.
ID Display	Selects how the Port ID is displayed: the Port Number alone (PORT NUMBER); the Port Name alone (PORT NAME); or the Port Number plus the Port Name (PORT NUMBER + PORT NAME). The default is PORT NUMBER + PORT NAME.
ID Duration	Determines how long a Port ID displays on the monitor after a port change has taken place. You can choose an amount from 1—255 seconds. The default is 3 Seconds. A setting of 0 (zero) disables this function.
Scan Duration	Determines how long the focus dwells on each port as it cycles through the selected ports in Auto Scan Mode (see *Auto Scanning*, page 124). Key in a value from 1—255 seconds. The default is 5 seconds; a setting of 0 disables the Scan function.
Screen Blanker	If there is no input from the console for the amount of time set with this function, the screen is blanked. Key in a value from 1—30 minutes. A setting of 0 disables this function. The default is 0 (disabled). **Note:** Although this function can be set from either the local console or a remote login, it only affects the local console monitor.
Logout Timeout	If there is no user input for the amount of time set with this function, the user is automatically logged out. A login is necessary before the KN2132 / KN4116 / KN4132 can be accessed again.
Beeper	When set to ON, the beeper sounds whenever a Port is changed; when activating the Auto Scan function (see *Auto Scanning*, page 124); or an invalid entry is made on an OSD menu. The default is ON.
Change Password	Clicking this button brings up a dialog box that allows users to change their passwords.

Log

The KN2132 / KN4116 / KN4132 logs all the events that take place on it. The *Log* page displays the information in the log file:
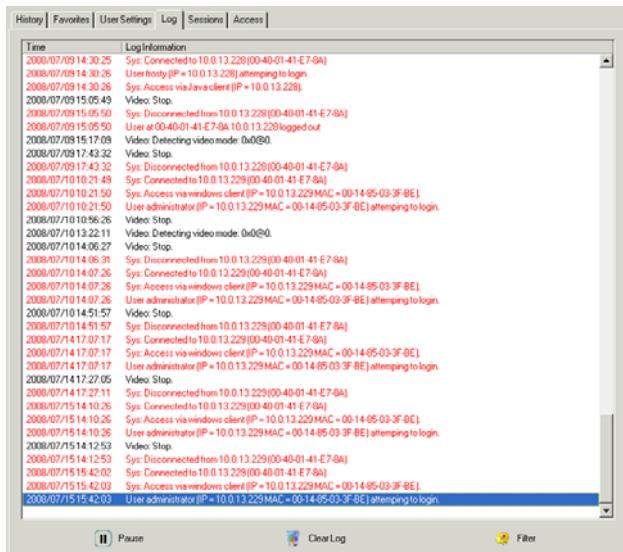
Note: The Log tab only appears for administrators and users who have been given permission to view the log file (see *Access*, page 75). It isn't available for other users.

◆ The log file tracks a maximum of 512 events. When the limit is reached, the oldest events get discarded as new events come in.

◆ Clicking *Pause* stops the display of new events; the button changes to *Resume*. Click **Resume** to start displaying events again.

◆ To clear the log file, click the *Clear Log* icon.

Filter

Filter allows you to search for particular events by date or by specific words or strings. When you access this function, the log filter dialog box displays at the bottom of the page:
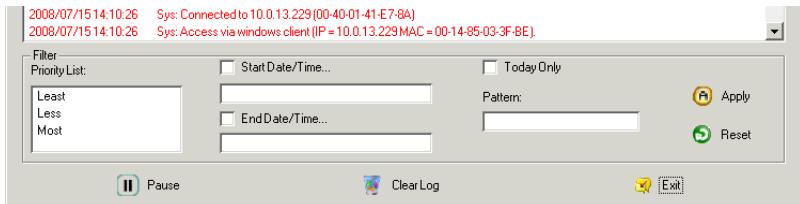
A description of the items is given in the table, below:

Item	Description
Priority	Sets the level for how detailed the filter results display should be.
Start Date/Time	Put a check in the checkbox to bring up a calendar. Set the date and time that you want the filtering to start from. All events from the Start date/time to the End date/time are displayed.
End Date/Time	Put a check in the checkbox to bring up a calendar. Set the date and time that you want the filtering to end at. All events from the Start date/time to the End date/time are displayed.
Today Only	Only the events for the current day are displayed.
Pattern	Key in the pattern that you are filtering for here. The multiple character wildcard (%) is supported. E.g., h%ds would match hands and hoods.
Apply	Starts the procedure; filters the events according to the criteria you specified; and returns the results.
Reset	Click this button to clear the entries in the dialog box and start with a clean slate.
Exit	Click this button to exit the Log Server.

Sessions

The *Session* page lets the administrator see at a glance all the users currently logged into the KN2132 / KN4116 / KN4132, and provides information about each of their sessions.

> **Note:** 1. The Session tab only appears in Administrator sessions. It isn't available for ordinary users.
>
> 2. The *Category* heading lists the type of user who has logged in: SA (Super Administrator); Admin (Administrator); Normal user (User).

The meanings of the headings at the top of the page are fairly straightforward. The *IP* heading refers to the IP address that the user has logged in from; the *Device* and *Port* headings show which device and port the user is currently accessing.

The *Bus ID* refers to the bus that the user is currently on (Bus 0 refers to the Local Console's bus).

> **Note:** 1. The Bus ID also displays on the control panel (see page 43).
>
> 2. Refer to the Note on page 129 for information about users and buses.

This page also gives the administrator the option of forcing a user logout by selecting the user and clicking **Kill Session**.

Access

Administrators use the *Access* page to set user and group access and configuration rights for switches and ports. The page is organized into three main areas: a large Main panel; a Status panel at the lower left, and a Properties panel at the lower right

Note: The Access tab only appears in Administrator sessions. It isn't available for ordinary users.

The Main Panel – Switches

If a switch is chosen in the Port Selection List, the Main panel looks similar to the one shown below:

The main panel consists of three columns: Name, Config, and View Log

- *Name* lists all the users and groups that have been created. The input box at the top of the column allows you to key in a search condition so that only user or group names that match what you key in show up in the List.

  The * wildcard is supported, so that more than one name can show up in the list. For example, if you key in **r*** [Enter], all names that begin with **r** get listed.

◆ *Config* indicates the users who have Configuration privileges. A check
mark (√) indicates that the user has permission to make changes to the
KN2132 / KN4116 / KN4132's configuration settings (see Chapter 8,
Device Management); an X means that the user is denied permission to
make configuration changes.

   ◆ Click the icon to toggle the choices.

   ◆ The drop down list at the top of the column allows you to filter which
   users and groups display in the Name list (All, Permitted, Denied)
   according to their privileges.

◆ *View Log* indicates the users who have permission to view the KN2132 /
KN4116 / KN4132's log files. A check mark (√) indicates that the user
has permission to view the files; an X means that the user is denied
permission to view them. Click the icon to toggle the choices.

   ◆ Click the icon to toggle the choices.

   ◆ The drop down list at the top of the column allows you to filter which
   users and groups display in the Name list (All, Permitted, Denied)
   according to their privileges.

◆ The panels at the bottom of the page are inactive except for the *Timeout*
field. If there is no user input for the amount of time set with this function,
the user is automatically logged out. A login is necessary before the
KN2132 / KN4116 / KN4132 can be accessed again.

The Main Panel – Ports

If a port is chosen in the Port Selection List, the Main panel looks similar to the one shown below:
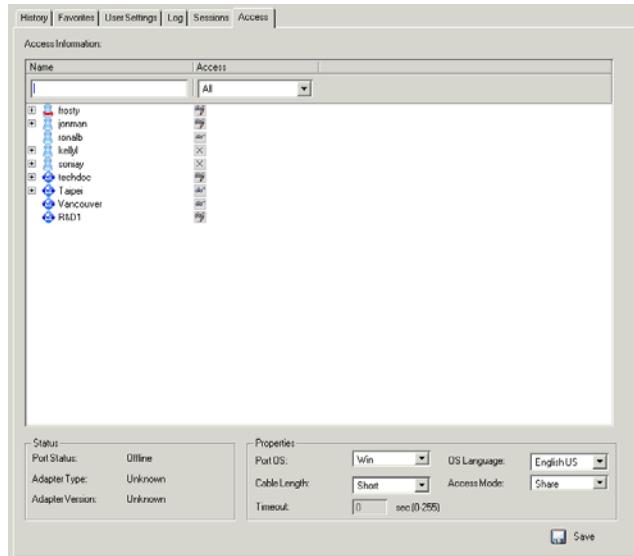
◆ *Name* lists all the users and groups that have been created. The input box at the top of the column allows you to key in a search condition so that only user or group names that match what you key in show up in the List.

  The * wildcard is supported, so that more than one name can show up in the list. For example, if you key in **r*** [Enter], all names that begin with **r** get listed.

◆ *Access* displays the access rights of the users and groups for each port, as shown in the table below:

	Full Access: The user can view the remote screen and can perform operations on the remote system from his keyboard and monitor.
	View Only: The user can only view the remote screen; he cannot perform any operations on it.
	No Access: No port access. The Port will not show up on the User's list on the Main Screen.

The drop down list at the top of the column allows you to filter which users and groups display in the Name list.

The Status Panel

The *Status* panel provides information about the online status of a selected port, and the KVM Adapter cable attached to it:
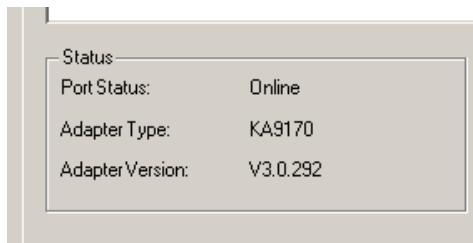
Note: This panel is inactive (as shown in the previous screenshot), when a switch is selected in the Port Select list.

The Properties Panel

For convenience, the *Properties* panel offers an additional input method to make configuration settings for the selected port.

These port properties settings are the same as the ones that were discussed earlier in this chapter. Refer back to *Port Properties*, page 63 for setting details.

User Management

Overview

The *User Management* page allows super administrators and administrators to create, modify, and delete users and groups, and assign attributes to them.

Note: This page is for super administrators and administrators only. Ordinary users can go directly to Chapter 11, *Port Operation*.

The Main Page

The page is organized into two main areas. All users and groups appear in the panel at the left of the page. The large panel at the right provides more detailed information at-a-glance for each. When you access the User Management page for the first time, a screen similar to the one below appears:

◆ There is a pre-installed super administrator account. It can be used to set up the switch and to begin creating users and groups. The Username for this account is *administrator*; the password is *password*. For security purposes, we strongly recommend changing these to something unique.

◆ The section located below the Users and Groups list provides a filter that allows you to expand or narrow the scope of the names that appear in the list.

◆ The buttons below the main panel are used in managing users and groups, as shown in the sections that follow.

Users

Adding Users

To add a user, do the following:

1. Select *Users* in the list panel.

2. Click **Add** at the bottom of the main panel. The User notebook opens, with the *User* tab selected:
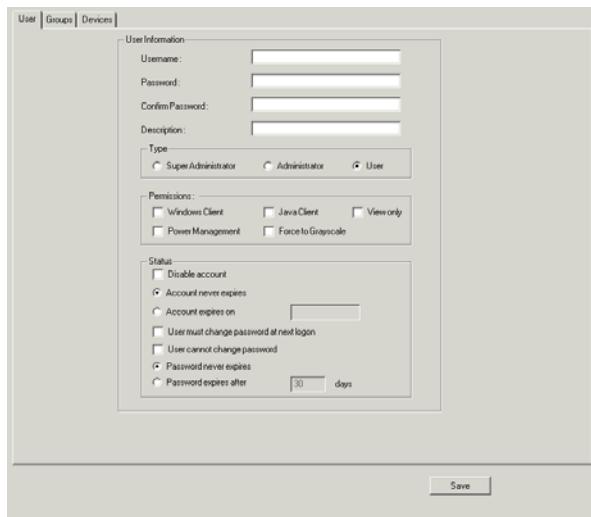
3. Enter the required information in the appropriate fields. A description of each of the fields is given in the table below:

Field	Description
Username	A minimum of 6 and a maximum of 16 characters is allowed.
Password	A minimum of 8 and a maximum of 16 characters is allowed.

(Continued from previous page.)

Field	Description
Confirm Password	To be sure there is no mistake in the password, you are asked to enter it again. The two entries must match.
Description	Additional information about the user that you may wish to include.
Type	There are three categories: Super Administrator, Administrator and User. There is no limitation on the number of accounts that can be created in each category. ◆ The super administrator is responsible for the overall installation configuration and maintenance; user management; and device and port assignments. ◆ Administrators have user management privileges. They can also access the ports and devices assigned to them by the super administrator. ◆ Users can access the ports and devices assigned to them by the super administrator.
Permissions	Super administrators and administrators automatically have Windows Client, Java Client, and Power Management permissions. Permissions and restrictions for ordinary users are set individually by checking the appropriate boxes, as follows: ◆ *Windows Client* allows a user to download the Windows Client software, and access the KN2132 / KN4116 / KN4132 with it, in addition to (or instead of) the browser access method. ◆ *Java Client* allows a user to download the Java Client software, and access the KN2132 / KN4116 / KN4132 with it, in addition to (or instead of) the browser access method. ◆ *Power Management* allows a User to connect to Power on the Net™ devices. ◆ *View Only* limits users to only being able to view the display of connected devices. They cannot control port access, nor can they input any keyboard or mouse signals to the devices they view. ◆ *Force to Grayscale* forces the user's view of the remote display to be in grayscale. This can speed up I/O transfer in low bandwidth situations.

(Continued from previous page.)

Field	Description
Status	Status allows you to control the user's account and access to the installation, as follows:
	◆ *Disable Account* lets you suspend a user's account without actually deleting it, so that it can be easily reinstated in the future.
	◆ If you don't want to limit the time scope of the account, select *Account never expires*; if you want to limit the amount of time that the account remains in effect, select *Account expires on*, and key in the expiration date.
	◆ To require a user to change his password at the next logon, select *User must change password*. This can be used by the administrator to give the user a temporary password to log in for the first time, and then let the user set the password of his choice for future logins.
	◆ To make a password permanent, so that the user cannot change it to something else, select *User cannot change password*.
	◆ For security purposes, administrators may want users to change their passwords from time to time.
	◆ If so, select *Password expires after*, and key in the number of days allowed before the password expires. Once the time is up, a new password must be set.
	◆ If not, select *Password never expires.* This allows users to keep their current passwords for as long as they like.

4. At this point you can assign the new user to a group by selecting the *Groups* tab – the Groups page is discussed on page 88. You can also assign the user's port access rights by selecting the *Devices* tab – the Devices page is discussed on page 92.

> **Note:** Optionally, you can skip this step now to add more users and create groups, and come back to it later.

5. When your selections have been made click **Save**.

6. When the *Operation Succeeded* popup appears, click **OK**.

7. Click **Users** in the List panel to return to the main screen. The new user appears in the list and in the main panel, as well.

+ The Users List can expand and collapse. If the list is expanded, click the minus symbol (–) next to the *Users* icon to collapse it; if it is collapsed there is a plus symbol (+) next to the icon. Click the plus symbol to expand it.

+ The icon for super administrators has two black bands; the icon for administrators has one red band.

+ The large main panel shows the user's name; the description that was given when the account was created; and whether the account is currently active or has been disabled.

Modifying User Accounts

To modify a user account, do the following:

1. In the *User* list, click the user's name

    – or –

    In the main panel, select the user's name, then click **Modify**.

2. In the *User* page that comes up, make your changes, then click **Save**.

> **Note:** The *User* page is discussed on page 80; the *Groups* page is discussed on page 88, the *Devices* page is discussed on page 92.

Deleting User Accounts

To delete a user account do the following:

1. In the main panel, select the user's name, then click **Delete**.

2. In the confirmation popup that appears, click **OK**.

Groups

Groups allow administrators to easily and efficiently manage users and devices. Since device access rights apply to anyone who is a member of the group, administrators need only set them once for the group, instead of having to set them for each user individually. Multiple groups can be defined to allow some users access to specific devices, while restricting other users from accessing them.

Creating Groups

To create a group, do the following:

1. Select *Groups* in the list panel.

2. Click **Add** at the bottom of the main panel. The Group notebook opens, with the *Group* tab selected:
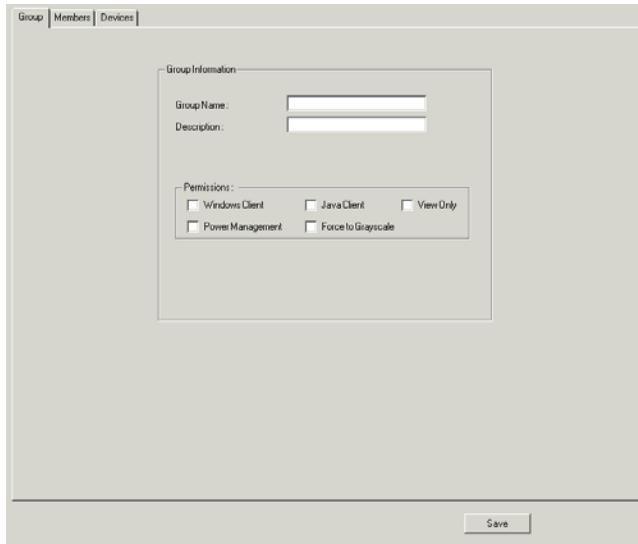
(Continued from previous page.)

3. Enter the required information in the appropriate fields. A description of each of the fields is given in the table below:

Field	Description
Group Name	A minimum of 6 and a maximum of 16 characters is allowed.
Description	Additional information about the user that you may wish to include.
Permissions	Permissions and restrictions for groups are set by checking the appropriate boxes, as follows: ◆ *Windows Client* allows group members to download the Windows Client software, and access the KN2132 / KN4116 / KN4132 with it, in addition to (or instead of) the browser access method. ◆ *Java Client* allows group members to download the Java Client software, and access the KN2132 / KN4116 / KN4132 with it, in addition to (or instead of) the browser access method. ◆ *Power Management* allows group members to connect to Power on the Net™ devices. ◆ *View Only* limits group members to only being able to view the display of connected devices. They cannot control port access, nor can they input any keyboard or mouse signals to the devices they view. ◆ *Force to Grayscale* forces the group members' view of the remote display to be in grayscale. This can speed up I/O transfer in low bandwidth situations. **Note:** If a user has permissions in addition to the ones assigned to the group, the user keeps those permissions in addition to the group ones.

4. At this point you can assign users to the group by selecting the *Members* tab – the Members page is discussed on page 90. You can also assign the group's port access rights by selecting the *Devices* tab – the Devices page is discussed on page 92.

   Note: Optionally, you can skip this step now to add more groups and assign users to them, and come back to it later.

5. When your selections have been made click **Save**.

6. When the *Operation Succeeded* popup appears, click **OK**.

7. Click **Group** in the List panel to return to the main screen. The new group appears in the list and in the main panel, as well.

- ◆ The Groups List can expand and collapse. If the list is expanded, click the minus symbol (–) next to the *Users* icon to collapse it; if it is collapsed there is a plus symbol (+) next to the icon. Click the plus symbol to expand it.

- ◆ The large main panel shows the group's name, and the description that was given when the group was created (the *Status* column is inactive).

Modifying Groups

To modify a group, do the following:

1. In the *Group* list, click the group's name

   – or –

   In the main panel, select the group's name, then click **Modify**.

2. In the *Group* notebook that comes up, make your changes, then click **Save**.

   Note: The *Group* page is discussed on page 85; the *Members* page is discussed on page 90, The *Devices* page is discussed on page 92.

Deleting Groups

To delete a group do the following:

1. In the main panel, select the group's name, then click **Delete**.

2. In the confirmation popup that appears, click **OK**.

Users and Groups

There are two ways to assign users to – and remove users from – groups: from the Users notebook; and from the Group notebook.

***

Note: Before you can assign users to groups, you must first create them. See *Adding Users*, page 80 for details.

***

Assigning Users to a Group From the User's Notebook

To assign a user to a group from the User's notebook, do the following:

1. In the *User* list, click the user's name

   – or –

   In the main panel, select the user's name, then click **Modify**.

2. In the *User* notebook that comes up, select the *Groups* tab. A screen, similar to the one below, appears:
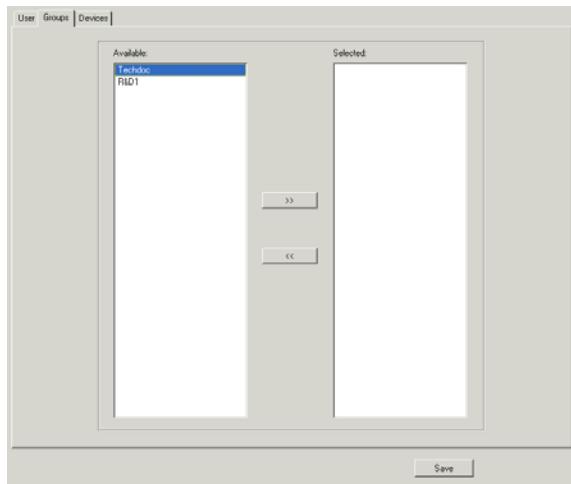
3. In the *Available* column, select the group that you want the user to be in.

4. Click the **Right Arrow** to put the group's name into the *Selected* column.

5. Repeat the above for any other groups that you want the user to be in.

6. Click **Save** when you are done.

## Removing Users From a Group From the User's Notebook

To remove a user from a group from the User's notebook, do the following:

1. In the *User* list, click the user's name

   – or –

   In the main panel, select the user's name, then click **Modify**.

2. In the *User* notebook that comes up, select the *Groups* tab. A screen, similar to the one below, appears:
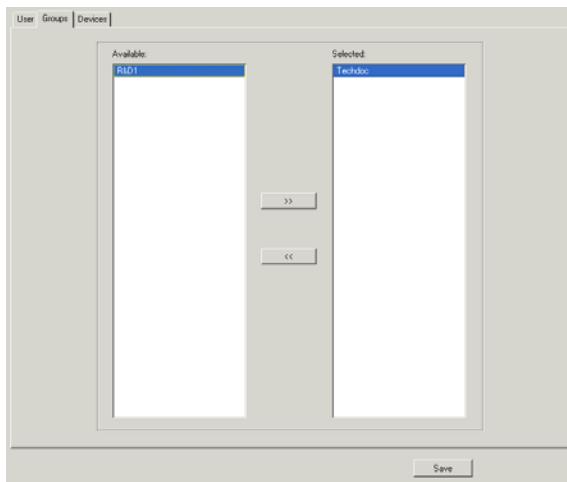

3. In the *Selected* column, select the group that you want to remove the user from.

4. Click the **Left Arrow** to remove the group's name from the *Selected* column. (It goes back into the *Available* column.)

5. Repeat the above for any other groups that you want to remove the user from.

6. Click **Save** when you are done.

Assigning Users to a Group From the Group's Notebook

To assign a user to a group from the Group notebook, do the following:

1. In the *Group* list, click the group's name

   – or –

   In the main panel, select the group's name, then click **Modify**.

2. In the *Group* notebook that comes up, select the *Members* tab. A screen, similar to the one below, appears:
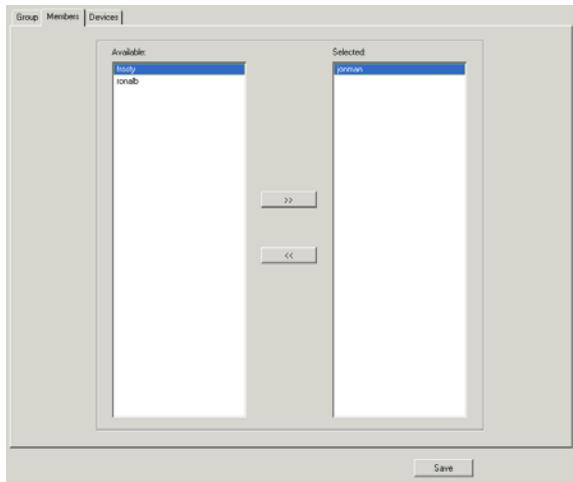
3. In the *Available* column, select the user that you want to be a member of the group.

4. Click the **Right Arrow** to put the user's name into the *Selected* column.

5. Repeat the above for any other users that you want to be members of the group.

6. Click **Save** when you are done.

Removing Users From a Group From the Group's Notebook

To remove a user from a group from the Group's notebook, do the following:

1. In the *Group* list, click the group's name

   – or –

   In the main panel, select the group's name, then click **Modify**.

2. In the *Group* notebook that comes up, select the *Members* tab. A screen, similar to the one below, appears:
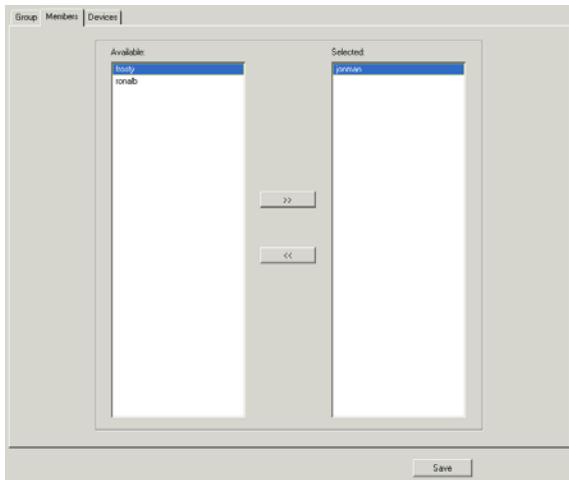
3. In the *Selected* column, select the user that you want to remove from the group.

4. Click the **Left Arrow** to remove the user's name from the *Selected* column. (It goes back into the *Available* column.)

5. Repeat the above for any other users that you want to remove from the group.

6. Click **Save** when you are done.

Device Assignment

When a user logs in to the KN2132 / KN4116 / KN4132, the OSD comes up with the Port Access page displayed. All the ports that the user is permitted to access are listed in the Port Selection panel at the left of the page. Access permissions for those ports and the devices connected to them are assigned on a port-by-port basis from the *User* or *Group* list of the User Management page.

Assigning Device Permissions From the User's Notebook

To assign a device permissions to a user User's notebook, do the following:

1. In the *User* list, click the user's name

   – or –

   In the main panel, select the user's name, then click **Modify**.

2. In the *User* notebook that comes up, select the *Devices* tab. A screen, similar to the one below, appears:
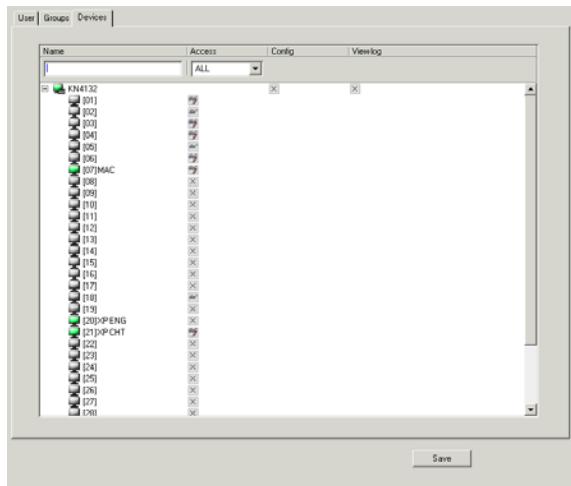
- ◆ Ports are listed under *Names* in the left hand column.
- ◆ The *Access* column is where device access rights are set.
- ◆ *Config* enables/disables the user from making changes to the KN2132 / KN4116 / KN4132's configuration settings.
- ◆ *View Log* permits/restricts viewing of the KN2132 / KN4116 / KN4132's log file.

3. Under the *Access* column, click the icon that corresponds to the port you want to configure to cycle through the choices, as shown in the table, below:

Icon	Meaning	Description
	Full Access	The user can view the remote screen and can perform operations on the remote system from his keyboard and monitor.
	View Only	The user can only view the remote screen; he cannot perform any operations on it.
	No Access	No access rights - the Port will not show up on the User's list on the Main Screen.

Note: You can use Shift-Click or Ctrl-Click to select a group of ports to configure. Clicking to cycle through the choices on any one of the selected ports causes all them to cycle in unison.

4. Under *Config*, click the icon to toggle the choices. A check mark ($\sqrt{}$) indicates that the user has permission to make changes to the KN2132 / KN4116 / KN4132's configuration settings (see Chapter 8, *Device Management*); an X means that the user is denied permission to make configuration changes.

5. Under *View Log*, click the icon to toggle the choices. A check mark ($\sqrt{}$) indicates that the user has permission to view the KN2132 / KN4116 / KN4132's log files; an X means that the user is denied permission to view the files.

6. When you have finished making your choices, click **Save**.

7. In the confirmation popup that appears, click **OK**.

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Filters

There are three filters at the top of the page that allow you to expand or limit the scope of the ports that are displayed, as described in the following table:

Filter		Description
Name		To filter on the port name, key in the name, partial name, or partial name and wild card (*****) then press **Enter**. Only the ports whose names correspond to what you have keyed in appear in the list.
Access	All	All ports appear in the list.
	Full Access	Only ports configured as Full Access ports appear in the list.
	View Only	Only ports configured as View Only ports appear in the list.
	No Access	Only ports configured as No Access ports appear in the list.

Assigning Device Permissions From the Groups' Notebook

To assign a device permissions to a Group of users, do the following:

1. In the *Groups* list, click the group's name

   – or –

   In the main panel, select the group's name, then click **Modify**.

2. In the *Groups* notebook that comes up, select the *Devices* tab.

3. The screen that comes up is the same one that appears in the User's notebook. Make your device assignments according to the information described under *Assigning Device Permissions From the User's Notebook*, page 92.

   The only difference is that whatever settings you make apply to all members of the group instead of just one individual member.

Device Management

Overview

The *Device Management* page allows super administrators to configure and control overall KN2132 / KN4116 / KN4132 operations.

Note: This page is for super administrators only. Other users can skip this chapter and go directly to Chapter 11, *Port Operation*.

The Main Page

The page is organized into two main areas. All KN2132 / KN4116 / KN4132 switches – as well as compatible cascaded switches – appear in the panel at the left of the page. The large panel at the right provides a tabbed notebook for making configuration settings.

When you access the Device Management page, the notebook opens with the General page displayed:

Each of the notebook pages is described in the sections that follow.

General
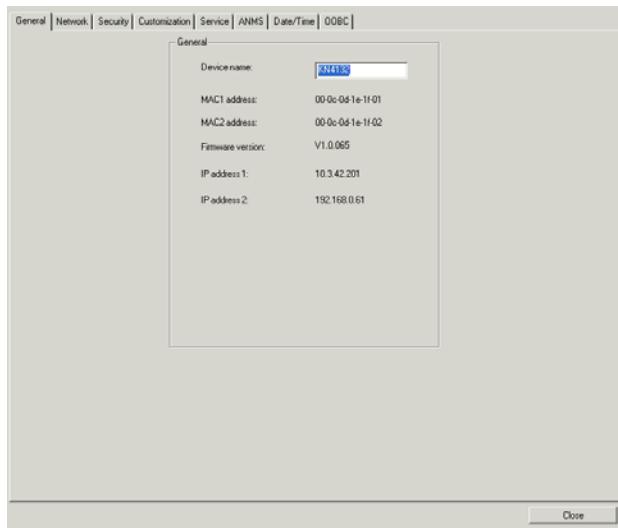
The General Page presents information about the selected device, as described in the table, below:

Item	Meaning
Device Name	This field lets you give the switch a unique name. This can be convenient when you need to differentiate among several devices in multi station installations. Simply delete the switch's number and key in the name of your choice.
MAC1 Address	The KN2132 / KN4116 / KN4132 supports two network interfaces. This item displays the MAC address of the first interface.
MAC2 Address	The KN2132 / KN4116 / KN4132 supports two network interfaces. This item displays the MAC address of the second interface.
Firmware Version	This item displays the current firmware version number. You can reference it to see if there are newer versions available on the Altusen website.
IP Address 1	This item displays the IP address of the first network interface.
IP Address 2	This item displays the IP address of the second network interface. **Note:** This item doesn't appear if the Redundant NIC feature has been enabled in the Network configuration (see *Redundant NIC*, page 98, for details),

Network

The Network page is used to specify the KN2132 / KN4116 / KN4132's network environment.
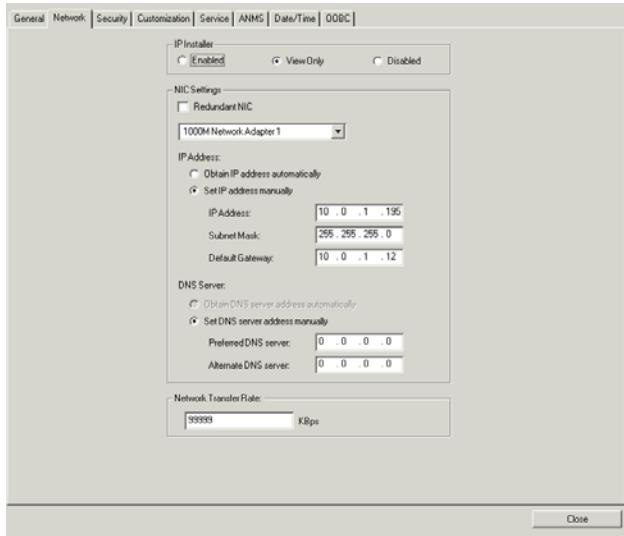
IP Installer

The IP Installer is an external Windows-based utility for assigning IP addresses to the KN2132 / KN4116 / KN4132.

Click one of the radio buttons to select *Enable*, *View Only*, or *Disable* for the IP Installer utility. See *IP Installer*, page 153, for IP Installer details.

Note: 1. If you select *View Only*, you will be able to see the KN2132 / KN4116 / KN4132 in the IP Installer's Device List, but you will not be able to change the IP address.

2. For security, we strongly recommend that you set this to *View Only* or *Disable* after use.

NIC Settings

Redundant NIC

The KN2132 / KN4116 / KN4132 is designed with two network interfaces. If *Redundant NIC* is enabled (the default), both interfaces make use of the IP address of Network Adapter 1.

Under this configuration, the second interface is usually inactive. If there is a network failure on the first interface, however, the KN2132 / KN4116 / KN4132 automatically switches to the second interface.

* Redundant NIC Enabled – Single IP Address for Both Interfaces

  To enable the Redundant NIC function, do the following:

  1. Click to put a check in the *Redundant NIC* checkbox.

  2. *Network Adapter 1* is selected in the network adapter listbox, and the listbox is disabled – you cannot configure Network Adapter 2.

  3. Configure the IP and DNS server addresses for Network Adapter 1 (see the sections below).

* Redundant NIC Not Enabled – Two IP Addresses

  If you choose not to enable the Redundant NIC function, the two NICs can be configured with separate interfaces. Users can log into the KN2132 / KN4116 / KN4132 with either IP address. To set up the switch with this configuration, the do the following:

  1. If there is a check in the *Redundant NIC* checkbox, click to remove it.

  2. In the network adapter listbox; select Network Adapter 1.

  3. Configure the IP and DNS server addresses for Network Adapter 1 (see the sections below).

  4. Drop down the network adapter listbox; select Network Adapter 2.

  5. Configure the IP and DNS server addresses for Network Adapter 2.

IP Address

The KN2132 / KN4116 / KN4132 can either have its IP address assigned dynamically (DHCP), or it can be given a fixed IP address.

◆ For dynamic IP address assignment, select the *Obtain IP address automatically* radio button.

◆ To specify a fixed IP address, select the *Set IP address manually* radio button and fill in the IP address with values appropriate for your network.

DNS Server

◆ For automatic DNS Server address assignment, select the *Obtain DNS Server address automatically* radio button.

◆ To specify the DNS Server address manually, select the *Set DNS server address manually* radio button, and fill in the addresses for the Preferred and Alternate DNS servers with values appropriate for your network.

Note: Specifying at the preferred DNS Server address is mandatory. The alternate DNS Server address is optional.

Network Transfer Rate

This setting allows you to tailor the size of the data transfer stream to match network traffic conditions by setting the rate at which the KN2132 / KN4116 / KN4132 transfers data to remote computers. The range is from 4—99999 Kilobytes per second (KBps).

Security

The Security page controls access to the KN2132 / KN4116 / KN4132.
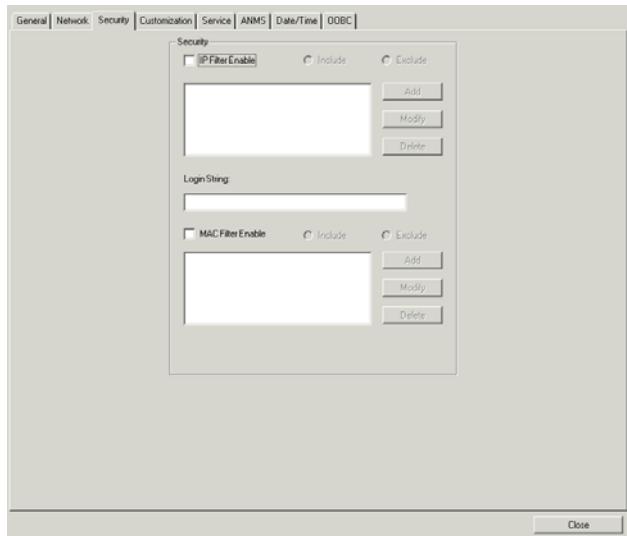
IP and MAC Filtering

If any filters have been configured, they appear in the IP Filter and/or MAC Filter list boxes.

IP and MAC Filters control access to the KN2132 / KN4116 / KN4132 based on the IP and/or MAC addresses of the computers attempting to connect. A maximum of 100 IP filters and 100 MAC filters are allowed.

To enable IP and/or MAC filtering, **Click** to put a check mark in the *IP Filter Enable* and/or *MAC Filter Enable* checkbox.

◆ If the include button is checked, all the addresses within the filter range are allowed access; all other addresses are denied access.

◆ If the exclude button is checked, all the addresses within the filter range are denied access; all other addresses are allowed access.

Adding Filters

To add a filter, do the following:

1. After enabling IP and/or MAC filtering, click **Add**. A dialog box similar to the ones below appears:
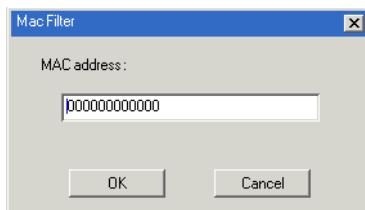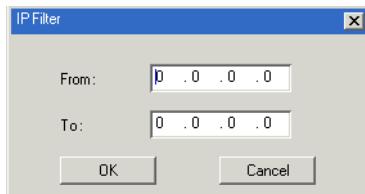
> **Note:** Each IP filter can consist of a single address, or a range of addresses. To filter a single IP address, key in the same address in both the *From* and *To* fields. To filter a continuous range of IP addresses, key in the start of the range in the From field; key in the end of the range in the To field.

2. Specify the filter addresses, then click **OK**.

Modifying Filters

To modify a filter, select it in the IP Filter and/or MAC Filter list boxes and click **Modify**. The Modify dialog box is similar to the Add dialog box. When it comes up, simply delete the old address(es) and replace it with the new one(s).

Deleting Filters

To delete a filter, select it in the IP Filter and/or MAC Filter list boxes and click **Delete**.

Login String

The *Login String* entry field lets the super administrator specify a login string (in addition to the IP address) that users must include when accessing the KN2132 / KN4116 / KN4132 with a browser. For example:

```
192.168.0.126/abcdefg
```

Note: 1. There must be a forward slash between the IP address and the string.

2. If no login string is specified here, anyone will be able to access the KN2132 / KN4116 / KN4132 login page using the IP address alone. This makes your installation less secure.

For security purposes, we recommend that you change this string from time to time.

Customization

The *Customization* page is used to set *Login Failure*, *Working Mode,* and *Miscellaneous* parameters.
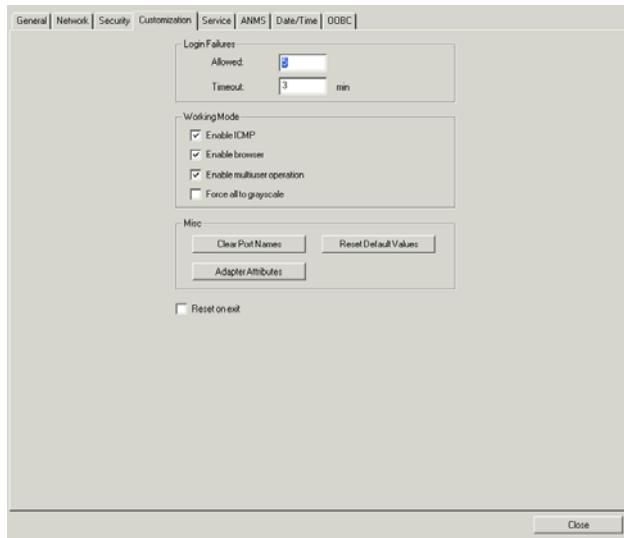
Login Failures

- ◆ **Allowed** sets the number of consecutive failed login attempts that are permitted from a remote computer.
- ◆ **Timeout** sets the amount of time a remote computer must wait before attempting to login again after it has exceeded the number of allowed failures.

Working Mode

- If *ICMP* is **enabled**, the KN2132 / KN4116 / KN4132 can be pinged and an IP address can be assigned with the ARP command. If it is not enabled, the device cannot be pinged, nor can it be assigned an IP address with the ARP command. The default is Enabled.

- To permit browser access to the KN2132 / KN4116 / KN4132, click to put a check mark in the *Enable Browser* checkbox. If browser access is not enabled, users will not be able to log into the unit with a browser. The default is Enabled.

- Enabling *Multiuser operation* permits more than one user to log into the KN2132 / KN4116 / KN4132 at the same time. The default is Enabled,

- If *Force all to grayscale* is enabled, the remote displays of all devices connected to the KN2132 / KN4116 / KN4132 are changed to grayscale. This can speed up I/O transfer in low bandwidth situations.

Miscellaneous

The functions performed by the remaining elements at the bottom of the screen are described in the table, below:

Parameter	Explanation
Clear Port Names	This function removes the names that have been assigned to the ports settings (see *Port Naming*, page 62).
Reset Default Values	This function undoes all configuration changes that have been made to the KN2132 / KN4116 / KN4132 (except for the Port Names) and returns the parameters to the original factory default settings (see *OSD Factory Default Settings*, page 174).
Adapter Attributes	Clicking this button brings up a dialog box that allows you to set attribute parameters for each of the KVM Adapter Modules connected to the KN2132 / KN4116 / KN4132's ports. See the next section for details.

Adapter Attributes

The *Adapter Attribute Settings* dialog box looks similar to the figure below:
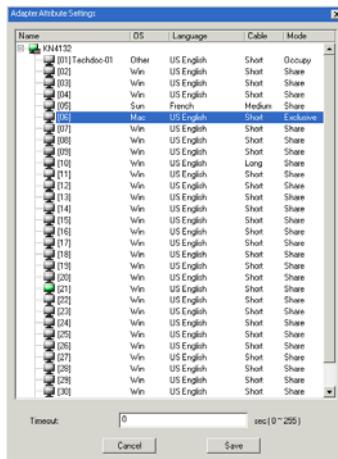
The attribute setting details are the same as the ones that were discussed in Chapter 6, *Port Access*. Refer back to *Port Properties*, page 63 for attribute details.

Select a port, then click on the attribute to cycle through the choices.

Note: You can use [**Shift] Click** or [**Ctrl] Click** to select several ports and set an attribute for all of them at the same time

After making your choices, click **Save** to save your settings and exit.

Service

The Service page is composed of two panels: Access Ports and Log Server:
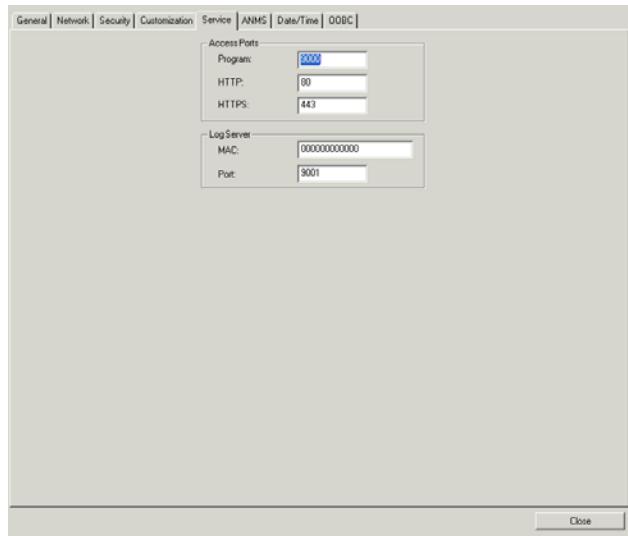
Access Ports

As a security measure, if a firewall is being used, the Administrator can specify the port numbers that the firewall will allow. Users must specify the port number when they log in. If an invalid port number (or no port number) is specified, the KN2132 / KN4116 / KN4132 will not be found. An explanation of the fields is given in the table below:

Field	Explanation
Program	This is the port number that must be specified when connecting from the Windows Client software program. Valid entries are from 1024–65535. The default is 9000.
HTTP	The port number for a browser login. The default is 80.
HTTPS	The port number for a secure browser login. The default is 443.

Note: 1. If there is no firewall (on an Intranet, for example), it doesn't matter what these numbers are set to, since they have no effect.

2. The access ports cannot have the same value. You must set a different value for each one.

Log Server

Important transactions that occur on the KN2132 / KN4116 / KN4132, such as logins and internal status messages, are kept in an automatically generated log file. Specify the MAC address and a port number for the computer that the Log Server resides on in this panel. The valid port range is 1-65535. The default port number is 9001.

Installation and operation of the Log Server is discussed in Chapter 12. The Log File is discussed on page 72.

ANMS

The Advanced Network Management Settings page is used to set up login
authentication and authorization management from external sources. It is
divided into three main panels, as described, below:
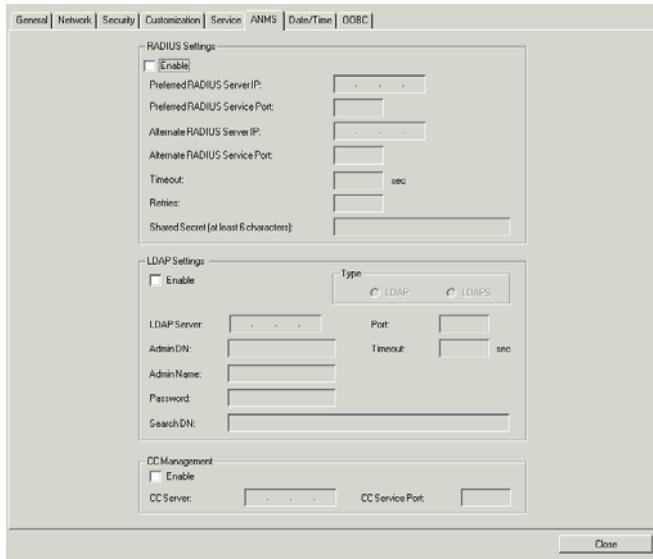
RADIUS Settings

To allow authentication and authorization for the KN2132 / KN4116 / KN4132
through a RADIUS server, do the following:

1. Check **Enable**.

2. Fill in the IP addresses and port numbers for the Preferred and Alternate
   RADIUS servers.

3. In the *Timeout* field, set the time in seconds that the KN2132 / KN4116 /
   KN4132 waits for a RADIUS server reply before it times out.

4. In the *Retries* field, set the number of allowed RADIUS retries.

5. In the *Shared Secret* field, key in the character string that you want to use
   for authentication between the KN2132 / KN4116 / KN4132 and the
   RADIUS Server.

6. On the RADIUS server, set the entry for each user as follows:

   `su/xxxx`

   Where *xxxx* represents the Username given to the user when the account was created on the KN2132 / KN4116 / KN4132. The user's access rights are the ones assigned for the KN2132 / KN4116 / KN4132, as well. (See *Adding Users*, page 80.)

LDAP / LDAPS Authentication and Authorization Settings

To allow authentication and authorization for the KN2132 / KN4116 / KN4132 via LDAP / LDAPS, refer to the information in the table, below:

Item	Action
Enable	Put a check in the *Enable* checkbox to allow LDAP / LDAPS authentication and authorization.
Type	Click a radio button to specify whether to use LDAP or LDAPS.
LDAP Server IP and Port	Fill in the IP address and port number for the LDAP or LDAPS server. For LDAP, the default port number is 389; for LDAPS, the default port number is 636.
Admin DN	Consult the LDAP / LDAPS administrator to ascertain the appropriate entry for this field. For example, the entry might look like this: ou=kn4132,dc=aten,dc=com
Admin Name	Key in the LDAP administrator's username.
Password	Key in the LDAP administrator's password.
Search DN	Set the distinguished name of the search base. This is the domain name where the search starts for user names.
Timeout	Set the time in seconds that the KN2132 / KN4116 / KN4132 waits for an LDAP or LDAPS server reply before it times out.

Note: If *LDAP Settings* is enabled, the LDAP schema for MS Active Directory must be extended. See *LDAP Server Configuration*, page 139, for details.

CC Management Settings

To allow authorization for the KN2132 / KN4116 / KN4132 through a CC (Control Center) server, check *Enable* and fill in the CC Server's IP address and the port that it listens on in the appropriate fields.

Date/Time

The Date/Time dialog page sets the KN2132 / KN4116 / KN4132's time parameters:
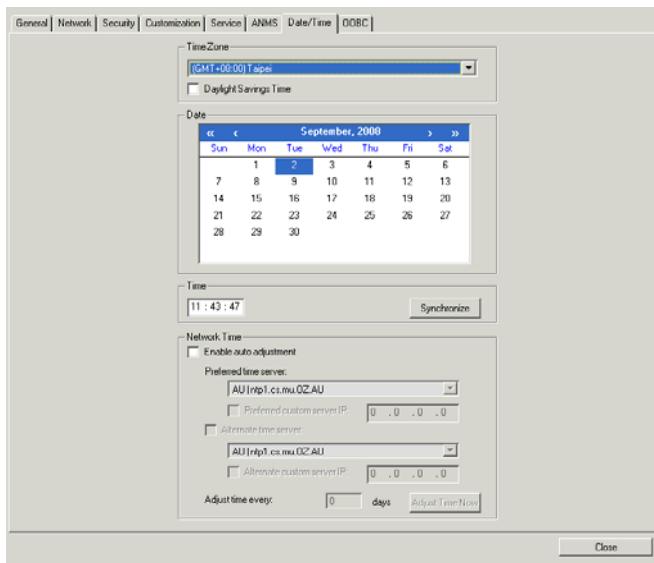
Set the parameters according to the information below.

Time Zone

◆ To establish the time zone that the KN2132 / KN4116 / KN4132 is located in, drop down the *Time Zone* list and choose the city that most closely corresponds to where it is at.

◆ If your country or region employs Daylight Saving Time (Summer Time), check the corresponding checkbox.

Date

Mouse Setup

- Click << or >> to move backward or forward by one year increments.
- Click < or > to move backward or forward by one month increments.
- In the calendar, click on the day.
- To set the time, use the 24 hour HH:MM:SS format.
- Click **Synchronize** to save your settings.

Keyboard Setup

- Press [Tab] to bring the focus to the *Date* section.
- Press [+] or [-] to move backward or forward by one year increments.
- Press [PgUp] or [PgDn] to move backward or forward by one month increments.
- Use the Arrow keys to select the day.
- Press [Tab] to bring the focus to the *Time* section.
- To set the time, use the 24 hour HH:MM:SS format.
- Press [Tab] to bring the focus to the *Synchronize* button.
- Press [Enter].

Network Time

To have the time automatically synchronized to a network time server, do the following:

1. Check the *Enable auto adjustment* checkbox.

2. Drop down the time server list to select your preferred time server

   – or –

   Check the *Preferred custom server IP* checkbox, and key in the IP address of the time server of your choice.

3. If you want to configure an alternate time server, check the *Alternate time server* checkbox, and repeat step 2 for the alternate time server entries.

4. Key in your choice for the number of days between synchronization procedures.

5. If you want to synchronize immediately, click **Adjust Time Now**.

OOBC

In case the KN2132 / KN4116 / KN4132 cannot be accessed with the usual
LAN-based methods for some other reason, it can be accessed via the switch's
modem port. This page is used to enable support for PPP (modem) dial in
operation.
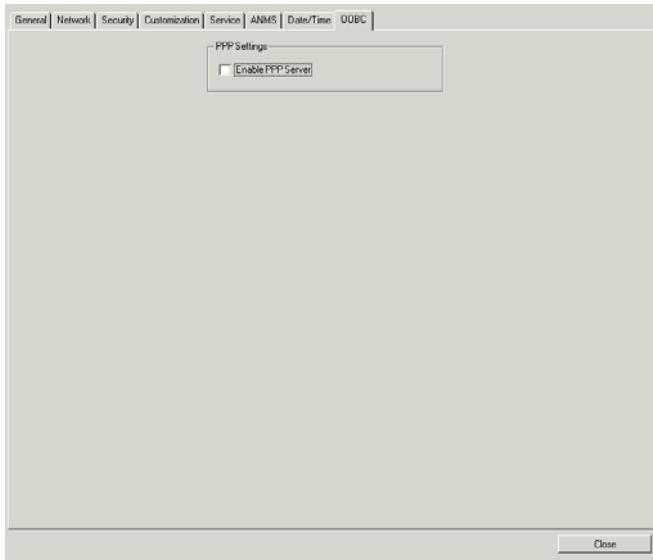
To enable this function, check the *Enable PPP Server* checkbox.

See *PPP Modem Operation*, page 156, for PPP setup and operation details.

Maintenance

Overview

The *Maintenance* function is used to upgrade the KN2132 / KN4116 / KN4132's firmware, as well as the firmware of the KVM Adapter Cables used to connect its ports to the installed devices.

Note: This function is for super administrators only. Other users can skip this chapter and go directly to Chapter 11, *Port Operation*.

The Main Screen

When you click the Maintenance tab, a dialog box, similar to the one below, appears:
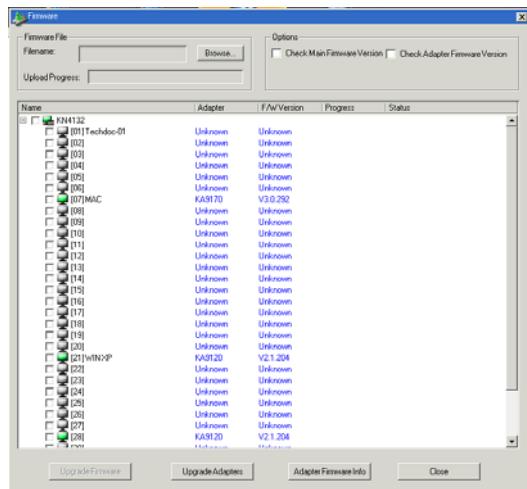
(Continues on next page.)

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The dialog box is organized into three main areas: Firmware File; Options; and a large main panel. These are described in the following sections.

Firmware File

As new versions of the KN2132 / KN4116 / KN4132 firmware become available, they are posted on our website and can be downloaded to a convenient location on your computer from there. When performing an upgrade, you use this section to navigate to where the download file is located.

Options

If you enable *Check Firmware Version*, when you perform an upgrade the current firmware level(s) are compared with that of the upgrade file. If the current version is higher than the upgrade version, a popup message appears, and gives you the option to Continue or Cancel the operation.

The Main Panel

A description of the items shown in this panel are described in the table, below:

Item	Description
Name	A listing of the KN2132 / KN4116 / KN4132's ports. The checkbox is for selecting ports whose KVM Adapter firmware you want to upgrade.
Adapter	Displays the type of KVM Adapter connected to the port.
F/W Version	Displays the firmware version of the KVM Adapter connected to the port.
Progress	Shows the progress of the firmware upgrade as it takes place.
Status	Shows the status of the upgrade after the process has completed.
Upgrade Firmware	Click this button to upgrade the main KN2132 / KN4116 / KN4132 firmware and the firmware of the selected adapters. see *Upgrading the Firmware*, page 115, for firmware upgrading details.
Upgrade Adapters	Click this button to upgrade the firmware of the selected adapters without upgrading main KN2132 / KN4116 / KN4132 firmware. See *Independent Adapter Firmware Upgrade*, page 116, for details on upgrading adapters independently of the main firmware.
Adapter Firmware Info	Shows the versions of the KVM Adapter firmware contained in the main firmware file. If anything is newer than the version displayed in the *F/W Version* column, you may want to upgrade the adapter to the newer version. See *Independent Adapter Firmware Upgrade*, page 116, for details.

Upgrading the Firmware

The following procedure describes upgrading the KN2132 / KN4116 / KN4132 main firmware as well as the firmware of selected KVM Adapter Cables at the same time. To perform the upgrades, do the following:

1. Go to our website and download the new KN2132 / KN4116 / KN4132 firmware file to a convenient location on your computer.

2. In the *Firmware File* section of the Maintenance dialog box, click **Browse**; navigate to where the firmware file is located; and select it.

3. When the *Upload Progress* bar shows that the file has been uploaded, in he *Name* column of the Main Panel, check the KN2132 / KN4116 / KN4132 whose firmware you want to upgrade.

4. Click **Adapter Firmware Info**.

5. Compare the adapter firmware information shown in the popup window with the version shown in the *F/W Version* column of the Main Panel.

6. In the *Name* column of the Main Panel, check the ports whose KVM Adapters you want to upgrade.

7. Click **Upgrade Firmware** to start the upgrade procedure.

   - If you enabled *Check Firmware Version*, the current firmware level(s) are compared with that of the upgrade file. If the current version is higher than the upgrade version, a popup message appears, and gives you the option to Continue or Cancel the operation.

   - If you didn't enable *Check Firmware Version*, the upgrade files are installed without checking whether they are a higher level, or not.

   - As the upgrade proceeds, progress information is shown in the *Progress* column.

   - When the procedure completes the status of the upgrade (Succeeded or Failed) is shown in the *Status* column.

Note: To recover from a "failed upgrade" situation, see *Firmware Upgrade Recovery*, page 117.

Independent Adapter Firmware Upgrade

The following procedure describes upgrading the firmware of selected KVM Adapter Cables independently – without having to go through the main firmware upgrade procedure. To perform the independent upgrades, do the following:

1. Go to our website and download the new KN2132 / KN4116 / KN4132 firmware file to a convenient location on your computer.

2. In the *Firmware File* section of the Maintenance dialog box, click **Browse**; navigate to where the firmware file is located; and select it.

3. When the *Upload Progress* bar shows that the file has been uploaded, click **Adapter Firmware Info**.

4. Compare the adapter firmware information shown in the popup window with the version shown in the *F/W Version* column of the Main Panel.

5. In the *Name* column of the Main Panel, check the ports whose KVM Adapters you want to upgrade.

6. Click **Upgrade Adapters** to start the upgrade procedure.

    ◆ If you enabled *Check Firmware Version*, the current firmware level(s) are compared with that of the upgrade file. If the current version is higher than the upgrade version, a popup message appears, and gives you the option to Continue or Cancel the operation.

    ◆ If you didn't enable *Check Firmware Version*, the upgrade files are installed without checking whether they are a higher level, or not.

    ◆ As the upgrade proceeds, progress information is shown in the *Progress* column.

    ◆ When the procedure completes the status of the upgrade (Succeeded or Failed) is shown in the *Status* column.

Note: 1. You can perform this procedure (starting with step 3), anytime you add an Adapter to the installation to make sure it is working with the latest firmware version.

2. To recover from a "failed upgrade" situation, see *Adapter Cable Firmware Upgrade Recovery*, page 117.

Firmware Upgrade Recovery

Should the KN2132 / KN4116 / KN4132's main firmware upgrade procedure fail, and the switch becomes unusable, the following firmware upgrade recovery procedure will resolve the problem:

1. Power off the switch.

2. Press and hold the Reset Switch in (see *Reset Switch*, page 9 for details).

3. While holding the Reset Switch in, power the switch back on.

This causes the switch to use the factory installed firmware version, rather than the version that you were attempting to upgrade the switch to. Once the switch is back up, you can try upgrading the firmware again, if you wish.

Adapter Cable Firmware Upgrade Recovery

Should the firmware upgrade procedure fail for one of the KVM Adapter Cables and the adapter becomes unusable, the following firmware upgrade recovery procedure will resolve the problem:

1. Unplug the Adapter from the computer it is connected to.

2. Slide its *Firmware Upgrade Recovery Switch* (located next to the Cat 5e connector) to the **RECOVER** position.

3. Plug the Adapter back into the computer.

4. Repeat the Adapter upgrade procedure starting with step 5.

5. After the Adapter has been successfully upgraded, slide the Firmware Upgrade Recovery Switch back to the **NORMAL** position.

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Overview

Download is used to download stand-alone AP versions of the Windows Client, the Java Client, the Log Server, and Power Over the Net (PON) programs. When you select this tab, a list of available programs appears:

Note: The number and type of programs that appear will vary depending on your User Type.

Click the program you want to download; save it to a convenient location on your hard disk, and run it from there.

- Windows and Java Client operation is the same as browser operation. Refer to Chapter 4, *Logging In*, for login details. Refer to Chapters 6 and 11 for port operation details.

- The Log Server is discussed in Chapter 12.

- If you are authorized to access a Power Over the Net™ (PON) device connected to the switch, the PON program will allow you to access it.

   Note: This program can only be used in the current session. If you log out, the program will stop. You must download and run it again the next time you log in.

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Port Operation

Overview

After you have successfully logged in (see *Logging In*, page 31), the KN2132 / KN4116 / KN4132 Main OSD Page appears with the Port Access tab selected:
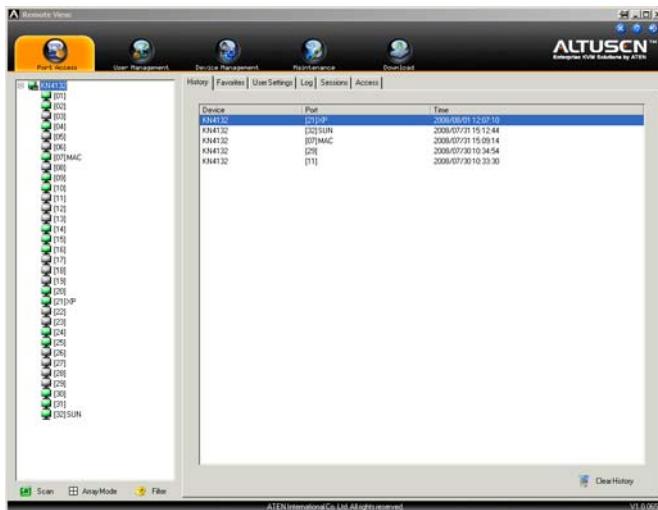
Note: 1. There is a hidden Control Panel at the upper or lower center of the screen that becomes visible when you mouse over it. The Control Panel is discussed on page 43.

2. See Chapter 6, *Port Access* for details about the Port Access page.

All the ports that a user is permitted to access are listed in the Port Selection panel at the left of the page. To access a device connected to one of the KN2132 / KN4116 / KN4132's ports, double click its icon.

(Continued from previous page.)
Once you switch to a port, its screen displays on your monitor, and your
keyboard and mouse input affects the remote system:

The OSD Toolbar

The OSD provides a toolbar to help you with port switching operations from
within the captured port. To bring up the toolbar, tap the OSD Hotkey (Scroll
Lock or Ctrl), twice. The toolbar appears at the upper left corner of the screen:

Depending on the settings that were selected for ID Display (see page 71), the
Port Number and/or the Port Name display at the right of the toolbar. The
meanings of the toolbar icons are given in a table on page 123.

Note: You can adjust the toolbar transparency (see *Video Settings*, page 48).

When the toolbar displays, mouse input is confined to the toolbar area and
keyboard input has no effect on the computer connected to the port. To carry
out operations on the computer, close the toolbar by clicking the **X** on it; or,
recall the OSD and select the port again.

The Toolbar Icons

The meanings of the toolbar icons are explained in the table below.

Icon	Purpose
⏮	Click to skip to the first accessible port on the entire installation without having to invoke the OSD.
⏪	Click to skip to the first accessible port previous to the current one without having to invoke the OSD.
⟳	Click to begin Auto Scan Mode. The KN2132 / KN4116 / KN4132 automatically switches among the ports that were selected for Auto Scanning with the Port Select and Filter functions (see *Filter*, page 66). This allows you to monitor their activity without having to switch among them manually.
⏩	Click to skip from the current port to the next accessible one without having to invoke the OSD.
⏭	Click to skip from the current port to the last accessible port on the entire installation without having to invoke the OSD.
⬚	Click to bring up the OSD.
✖	Click to close the toolbar.
⊞	Click to invoke Panel Array Mode (see *Panel Array Mode*, page 127).

Toolbar Hotkey Port Switching

When the toolbar displays, you can use hotkeys to provide KVM focus to a port directly from the keyboard. The KN2132 / KN4116 / KN4132 provides the following hotkey features:

◆ Auto Scanning

◆ Skip Mode Switching

The hotkeys are: **A** and **P** for Auto Scanning; and the **Arrow Keys** for Skip Mode.

Note: 1. In order for hotkey operations to take place, the toolbar must be visible (see *The OSD Toolbar*, page 122).

2. To use the keys designated as hotkeys (i.e. A, P, etc.) for normal, non-hotkey purposes, you must first close the toolbar.

3. For issues affecting multiple user operation in Auto Scan Mode, see *Multiuser Operation*, page 129.

Auto Scanning

The Scan function automatically switches among all the ports that are accessible to the currently logged on user at regular intervals, so that the user can monitor their activity automatically. Users can also limit the number of ports scanned with the Filter function of the Port Selection list. See *Scan*, page 65, and *Filter*, page 66, for further details.

Setting the Scan Interval:

The amount of time Auto Scan dwells on each port is set with the *Scan Duration* setting (see *Scan Duration*, page 71).

Invoking Auto Scan

To start Auto Scanning, with the toolbar showing, tap the **A** key. The Auto Scan function cycles through the ports in order - starting from the first port on the installation. An $\boxed{\text{S}}$ appears in front of the Port ID Display to indicate that the port is being accessed under Auto Scan Mode.

Pausing Auto Scan

While you are in Auto Scan Mode, you can pause the scanning in order to keep the focus on a particular computer by pressing **P**. During the time that Auto Scanning is paused, the **S** in front of the Port ID blinks On and Off.

Pausing when you want to keep the focus on a particular computer can be more convenient than exiting Auto Scan Mode because when you *Resume* scanning, you start from where you left off. If, on the other hand, you were to exit and then restart Auto Scan Mode, the scanning would start over from the very first computer on the installation.

To *Resume* Auto Scanning after a pause, press any key except [Esc] or the [Spacebar]. Scanning continues from where it left off.

Exiting Auto Scan

While Auto Scan Mode is in effect, ordinary keyboard functions are suspended. You must exit Auto Scan Mode in order to regain normal control of the keyboard. To exit Auto Scan Mode press [Esc] or the [Spacebar]. Auto Scanning stops when you exit Auto Scan Mode.

Skip Mode

Skip Mode allows you to switch ports in order to monitor the computers manually. You can dwell on a particular port for as long or as little as you like - as opposed to Auto Scanning, which automatically switches after a fixed interval. The Skip Mode hotkeys are the four Arrow keys. Their operation is explained in the table below:

Arrow	Action
←	Skips from the current port to the first accessible port previous to it.
→	Skips from the current port to the first accessible port that comes after it.
↑	Skips from the current port to the very first accessible port on the installation.
↓	Skips from the current port to the very last accessible port on the installation.

Recalling the OSD

To dismiss the toolbar and bring back the Main OSD display (the Port Access page), do one of the following:

◆ Tap the OSD Hotkey once.

◆ From the toolbar, click the icon that opens the OSD (see *The Toolbar Icons*, page 123).

The toolbar closes, and the main OSD display reappears.

OSD Hotkey Summary Table

The following table presents a summary of the OSD Hotkey actions after you have accessed a port. See *OSD Hotkey*, page 71 to set the OSD Hotkey.

To...		Do This...
Open the Toolbar		Click the OSD Hotkey twice
Open the OSD	The Toolbar is open	Click the OSD Hotkey once
	The Toolbar is not open	Click the OSD Hotkey three times

Panel Array Mode

Clicking the toolbar's *Panel* icon invokes Panel Array Mode. Under this mode, the OSD divides your screen into a grid of up to 42 panels:

- Each panel represents one of the KN2132 / KN4116 / KN4132's ports beginning with Port 1 at the upper left, and going from left to right; top to bottom.

- When the Array is first invoked, it scans through each of the ports that were selected for Auto Scanning with the Port Select and Filter functions (see *Filter*, page 66), and displays information about the port (port name, resolution, online status, port access status), at the bottom of the screen.

- The number of panels in the array can be selected by clicking **Show More Ports**, and **Show Fewer Ports** on the panel array toolbar (see the following page).

- If the computer connected to a port is on line, its screen displays in its panel, otherwise the panel is blank.

- Only ports that are accessible to the currently logged in user are displayed. For ports that are not accessible, the panel is blank.

- If you move the mouse pointer over a panel, information about the port displays at the bottom the screen.

- You can access a computer connected to a port by moving the mouse pointer over its panel and clicking. You switch to the computer exactly as if you had selected it from the OSD Main screen.

Panel Array Toolbar

The panel array toolbar, at the lower right of the screen, provides shortcut navigation and control of the panel array as described in the table below:

✛	Click and drag to move the toolbar to another position on the screen.
❚❚	Pause panel scanning, leaving the focus on the panel that currently has it.
◄◄	Move back four panels.
◄◄	Move to the previous panel.
►►	Move to the next panel.
►►|	Move ahead four panels.
✚	Increase the number of panels in the array.
▬	Decrease the number of panels in the array.
⁴⁄₃	Toggle 4/3 aspect ratio.
✖	Exit Panel Array mode.

Note: For issues affecting multiple user operation in Panel Array Mode, see *Multiuser Operation*, page 129.

Multiuser Operation

The KN2132 / KN4116 / KN4132 supports multiuser operation. When multiple users simultaneously access the switch from remote consoles, the rules of precedence that apply are shown in the following table:

Operation	Rule
General	Once a user invokes the OSD, no other user can invoke it until the original user closes it.
Auto Scan Mode	If a user has invoked Auto Scan Mode (see page 124), but the OSD has not been invoked, another user can interrupt Auto Scan Mode by invoking the OSD.
Panel Array Mode	◆ Once a user has invoked Panel Array Mode (see page 127), all successive users automatically enter Panel Array Mode. Panel Array Mode continues until the original user stops it. (Administrators can override Panel Array Mode, however.) ◆ Only the user who starts Panel Array Mode can use the Skip Mode (see page 125), function. ◆ Only the user who starts Panel Array Mode can switch ports. Other users automatically switch to the ports that the original user selects. However, if an individual user does not have access rights to the port that the original users switches to, he will not be able to view that. ◆ Individual users can increase or decrease the number of panels they wish to view in Panel Array Mode; however, the picture quality may decrease as the number of panels decreases.

Note: 1. The KN2132 only supports two remote buses. The first, third, fifth, etc., users to log in are all on one bus; the second, fourth, sixth, etc., users to log in are all on the other bus. When a user changes to a port everyone on the same bus changes to that port, as well.

2. The KN4116 and KN4132 support four remote buses. The first, fifth, ninth, etc. users are all on the first bus; the second, sixth, 10th, etc.; users are all on the second bus; the third, seventh, 11th, etc.; users are all on the third bus; the fourth, eighth, 12th, etc.; users are all on the fourth bus. When a user changes to a port everyone on the same bus changes to that port, as well.

3. We recommend that the user who starts Panel Array Mode set it to display at least four panels. Otherwise, it is possible that the other users may only receive part of the picture.

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Chapter 12
The Log Server

The Windows-based Log Server is an administrative utility that records all the events that take place on selected KN2132 / KN4116 / KN4132 units and writes them to a searchable database. This chapter describes how to install and configure the Log Server.

Installation

1. From the computer that you want to use as the Log Server, open your browser and log into the KN2132 / KN4116 / KN4132 (see page 32).

2. Click the *Log Server* button at the left of the webpage to start the Log Server installation program.

3. If any security warning dialog boxes appear, ignore them and click **Run** or **Open**.

   Note: If the browser cannot run the file, save it to disk, instead, and run the file from your disk.

The Log Server installation screen appears:
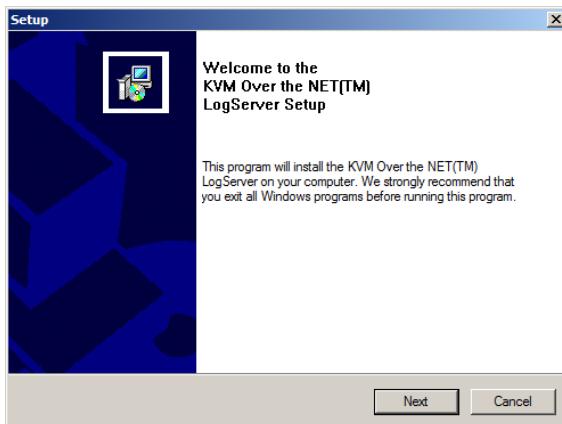
4. Click **Next**. Then follow the on-screen instructions to complete the installation and have the Log Server program icon placed on your desktop.

Starting Up

To bring up the Log Server, either double click the program icon, or key in the full path to the program on the command line. The first time your run it, a screen similar to the one below appears:
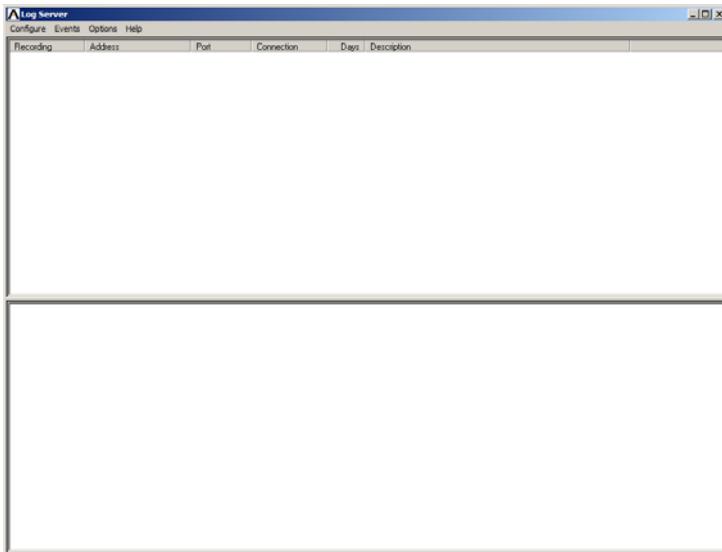
Note: The MAC address of the Log Server computer must be specified on the *Device Management Service* page (see page 106).

The screen is divided into three components:

◆ A *Menu Bar* at the top

◆ A panel that will contain a list of KN2132 / KN4116 / KN4132 units in the middle (see *The Log Server Main Screen*, page 137).

◆ A panel that will contain an *Events List* at the bottom

Each of the components is explained in the sections that follow.

The Menu Bar

The Menu bar consists of four items:

◆ Configure

◆ Events

◆ Options

◆ Help

These are discussed in the sections that follow.

**Note:** If the Menu Bar appears to be disabled, click in the KN2132 / KN4116 / KN4132 List window to enable it.

Configure

The Configure menu contains three items: Add; Edit; and Delete. They are used to add new KN2132 / KN4116 / KN4132 units to the KN2132 / KN4116 / KN4132 List; edit the information for units already on the list; or delete KN2132 / KN4116 / KN4132 units from the list.

◆ To add a KN2132 / KN4116 / KN4132 to the list, click **Add**.

◆ To edit or delete a listed KN2132 / KN4116 / KN4132, first select the target in the List window, then open this menu and click **Edit** or **Delete**.

When you choose *Add* or *Edit*, a dialog box, similar to the one below, appears:
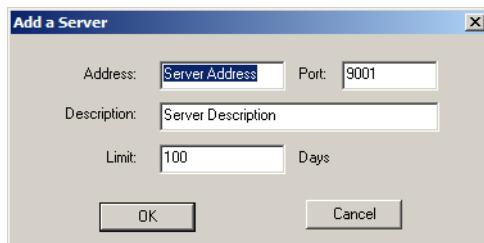
A description of the fields is given in the table, below:

Field	Explanation
Address	This can either be the IP address of the KN2132 / KN4116 / KN4132 or its DNS name (if the network administrator has assigned it a DNS name).
Port	The port number that was assigned to the Log Server(see *Service*, page 106).
Description	This field is provided so that you can put in a descriptive reference for the unit to help identify it.
Limit	This specifies the number of days that an event should be kept in the Log Server's database. Events that exceed the amount of time specified here can be removed with the Maintenance function (see *Maintenance:*, page 135).

Fill in or modify the fields, then click **OK** to finish.

Events

The Events Menu has two items: *Search* and *Maintenance*.

Search:

Search allows you to search for events containing specific words or strings. When you access this function, a screen, similar to the one below, appears:
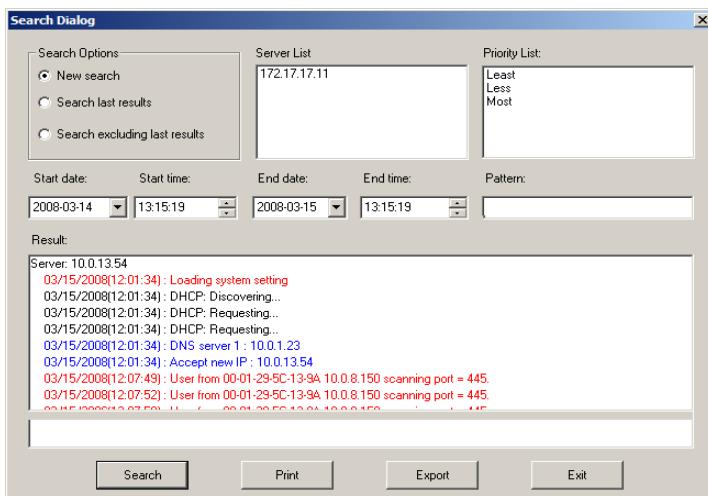
A description of the items is given in the table, below:

Item	Description
New search	This is one of three radio buttons that define the scope of the search. If it is selected, the search is performed on all the events in the database for the selected KN2132 / KN4116 / KN4132.
Search last results	This is a secondary search performed on the events that resulted from the previous search.
Search excluding last results	This is a secondary search performed on all the events in the database for the selected KN2132 / KN4116 / KN4132 excluding the events that resulted from the previous search.
Server List	KN2132 / KN4116 / KN4132 units are listed according to their IP address. Select the unit that you want to perform the search on from this list. You can select more than one unit for the search. If no units are selected, the search is performed on all of them.
Priority	Sets the level for how detailed the search results display should be. 1 is the most general; 3 is the most specific.
Start Date	Select the date that you want the search to start from. The format follows the MM/DD/YYYY convention.
Start Time	Select the time that you want the search to start from. The format follows the HH:MM:SS convention.
End Date	Select the date that you want the search to end at.
End Time	Select the time that you want the search to end at.
Pattern	Key in the pattern that you are searching for here. The multiple character wildcard (%) is supported. E.g., h%ds would match hands and hoods.
Results	Lists the events that contained matches for the search.
Search	Click this button to start the search.
Print	Click this button to print the search results.
Export	Click this button to save the search results to file.
Exit	Click this button to exit the Log Server.

Maintenance:

This function allows the administrator to perform manual maintenance of the database, such as erasing specified records before their expiration time is up.

Options

Network Retry allows you to set the number of seconds that the Log Server should wait before attempting to connect if its previous attempt to connect failed. When you click this item, a dialog box, similar to the one below, appears:
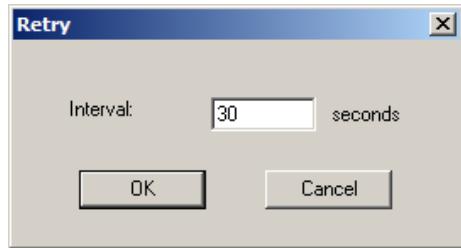
Key in the number of seconds, then click **OK** to finish.

Help

From the Help menu, click Contents to access the online Windows Help file. The help file contains instructions about how to setup, operation and troubleshoot the Log Server.

The Log Server Main Screen

Overview

The Log Server Main Screen is divided into two main panels.

◆ The upper (List) panel lists all of the KN2132 / KN4116 / KN4132 units that have been selected for the Log Server to track (see *Configure*, page 133).

◆ The lower (Event) panel displays the tick information for the currently selected KN2132 / KN4116 / KN4132. (If there are more than one unit, the selected unit is the one that is highlighted).

◆ To select a KN2132 / KN4116 / KN4132 unit in the list, simply click on it.
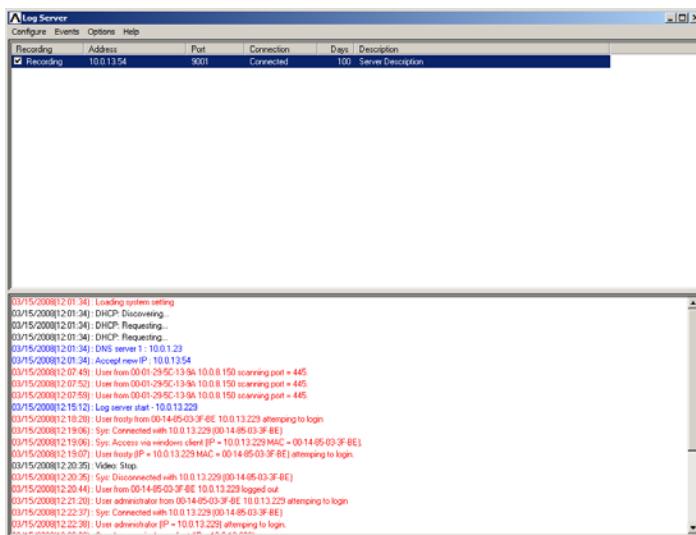
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The List Panel

The List panel contains six fields:

Field	Explanation
Recording	Determines whether the Log Server records the ticks for this KN2132 / KN4116 / KN4132, or not. If the Recording checkbox is checked, the field displays Recording, and the ticks are recorded. If the Recording checkbox is not checked, the field displays *Paused*, and the ticks are not recorded.
	Note: Even though a KN2132 / KN4116 / KN4132 is not the currently selected one, if its Recording checkbox is checked, the Log Server will still record its ticks.
Address	This is the IP Address or DNS name that was given to the KN2132 / KN4116 / KN4132 when it was added to the Log Server (see *Configure*, page 133).
Port	This is the Access Port number assigned to the KN2132 / KN4116 / KN4132 (see *Configure*, page 133).
Connection	◆ If the Log Server is connected to the KN2132 / KN4116 / KN4132, this field displays *Connected*.
	◆ If the Log Server is not connected, this field displays *Waiting*. This means that the Log Server's MAC address has not been set properly. It needs to be set on the *Device Management Service* page (see page 106).
Days	This field displays the number of days that the KN2132 / KN4116 / KN4132's log events are to be kept in the Log Server's database before expiration (see *Configure*, page 133).
Description	This field displays the descriptive information given for the KN2132 / KN4116 / KN4132 when it was added to the Log Server (see *Configure*, page 133).

The Event Panel

The lower panel displays log events for the currently selected KN2132 / KN4116 / KN4132. Note that if there are more than one KN2132 / KN4116 / KN4132 units, even though they aren't currently selected, if their *Recording* checkbox is checked, the Log Server records their log events and keeps them in its database.

Chapter 13
LDAP Server Configuration

Introduction

The KN2132 / KN4116 / KN4132 allows log in authentication and authorization through external programs. This chapter describes how to configure Active Directory for KN2132 / KN4116 / KN4132 authentication and authorization.

To allow authentication and authorization for the KN2132 / KN4116 / KN4132 via LDAP or LDAPS, the Active Directory's LDAP *Schema* must be extended so that an extended attribute name for the KN2132 / KN4116 / KN4132 – *iKVM4140-userProfile* – is added as an optional attribute to the *person* class.

Note: *Authentication* refers to determining the authenticity of the person logging in; *authorization* refers to assigning permission to use the device's various functions.

In order to configure the LDAP server, you will have to complete the following procedures: 1) Install the Windows Server Support Tools; 2) Install the Active Directory Schema Snap-in; and 3) Extend and Update the Active Directory Schema.

The following section provides an example of configuring LDAP under Windows 2003 Server.

Install the Windows 2003 Support Tools

To install the Windows 2003 Support Tools, do the following:

1. On your Windows Server CD, open the Support → Tools folder.

2. In the right panel of the dialog box that comes up, double click **SupTools.msi**.

3. Follow along with the Installation Wizard to complete the procedure.

Install the Active Directory Schema Snap-in

To install the Active Directory Schema Snap-in, do the following:

1. Open a Command Prompt.

2. Key in: `regsvr32 schmmgmt.dll` to register schmmgmt.dll on your computer.

3. Open the *Start* menu; click **Run**; key in: `mmc /a`; click **OK**.

4. On the *File* menu of the screen that appears, click **Add/Remove Snap-in**; then click **Add**.

5. Under *Available Standalone Snap-ins*, double click **Active Directory Schema**; click **Close**; click **OK**.

6. On the screen you are in, open the *File* menu and click **Save**.

7. For *Save in*, specify the *C:\Windows\system32* directory.

8. For *File name*, key in **schmmgmt.msc**.

9. Click **Save** to complete the procedure.

Create a Start Menu Shortcut Entry

To create a shortcut entry on the Start Menu for the Active Directory Schema, do the following:

1. Right click Start; select: **Open all Users → Programs → Administrative Tools**.

2. On the *File* menu, select **New → Shortcut**

3. In the dialog box that comes up, browse to, or key in the path to schmmgmt.msc (C:\Windows\system32\schmmgmt.msc), then click **Next**.

4. In the dialog box that comes up, key in *Active Directory Schema* as the name for the shortcut, then click **Finish.**

Extend and Update the Active Directory Schema

To extend and update the Active Directory Schema, you must do the following 3 procedures: 1) create a new attribute; 2) extend the object class with the new attribute; and 3) edit the active directory users with the extended schema.

Creating a New Attribute

To create a new attribute do the following:

1. From the Start menu, open Administrative Tools → Active Directory Schema.

2. In the left panel of the screen that comes up, right-click **Attributes**:
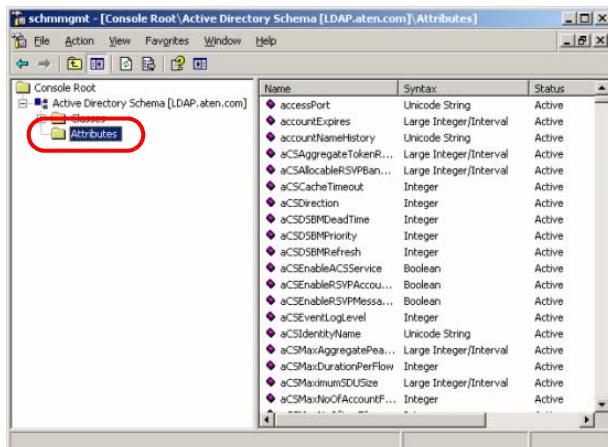
3. Select New → Attribute.

4. In the warning message that appears, click **Continue** to bring up the *Create New Attribute* dialog box.

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5. Fill in the dialog box to match the entries for *Description* and *Common Name* shown below, then click **OK** to complete the procedure.

**Note:** The Unique X500 Object ID uses periods, not commas.
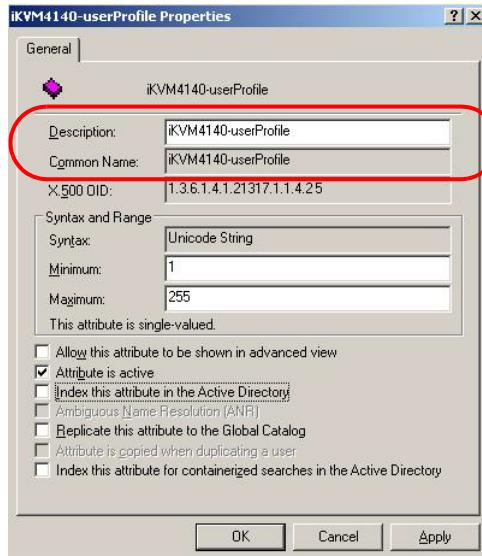
Extending the Object Class With the New Attribute

To extend the object class with the new attribute, do the following:

1. Open the Control Panel → Administrative Tools → Active Directory Schema.

2. In the left panel of the screen that comes up, select **Classes**.

3. In the right panel, right-click **person**:
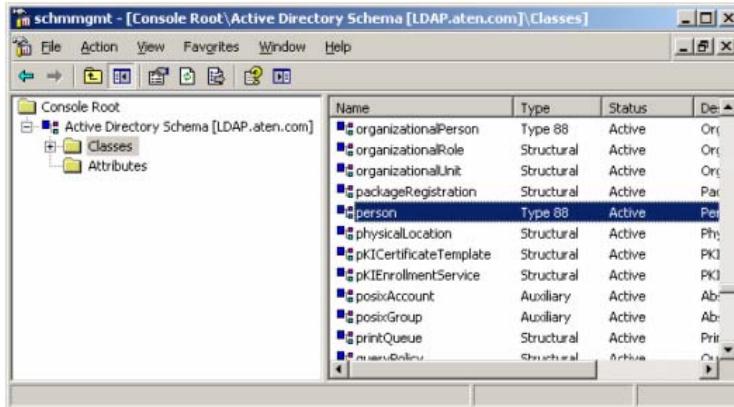
4. Select **Properties**; the *person Properties* dialog box comes up with the *General* page displayed. Click the *Attributes* tab.
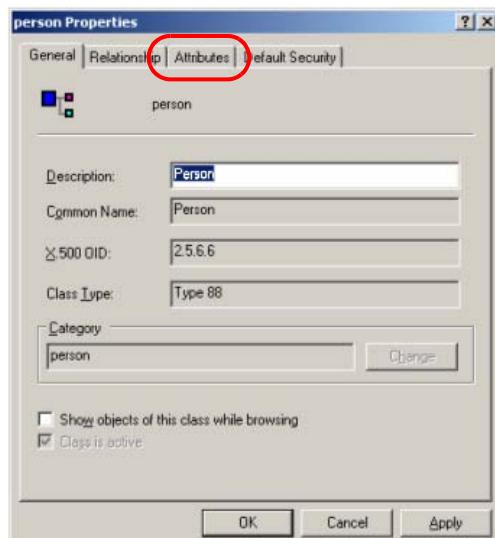
5. On the *Attributes* page, click **Add**:
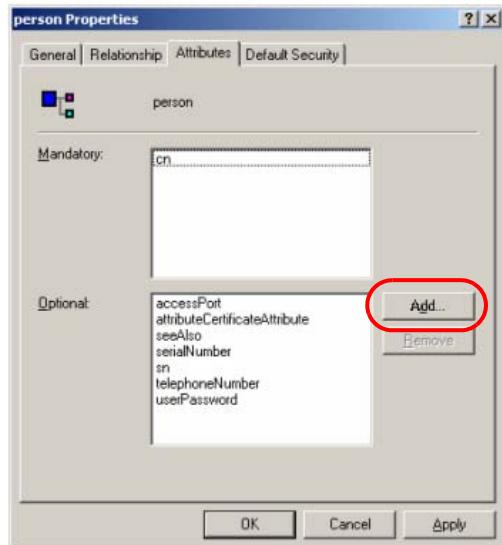
6. In the list that comes up, select **iKVM4140-userProfile**, then click **OK** to complete the procedure.
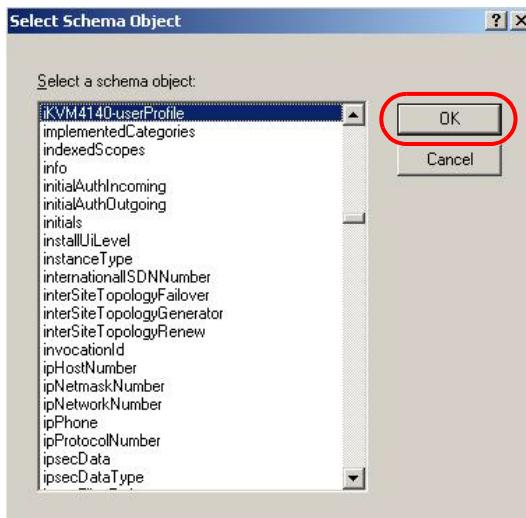
Editing Active Directory Users

To edit Active Directory Users With the Extended Schema, do the following:

1. Run **ADSI Edit**. (Installed as part of the *Support Tools*.)

2. In the left panel, open **Domain**, and navigate to the *DC=aten,DC=com CN=Users* node.

3. In the right panel, locate the user you wish to edit. (Our example uses *jason*.)
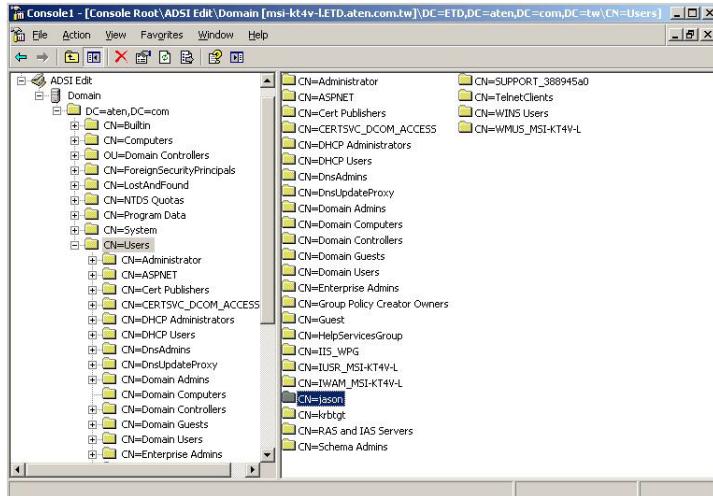
4. Right-click on the user's name and select **properties.**

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5. On the *Attribute Editor* page of the dialog box that appears, select
    iKVM4140-userProfile from the list.
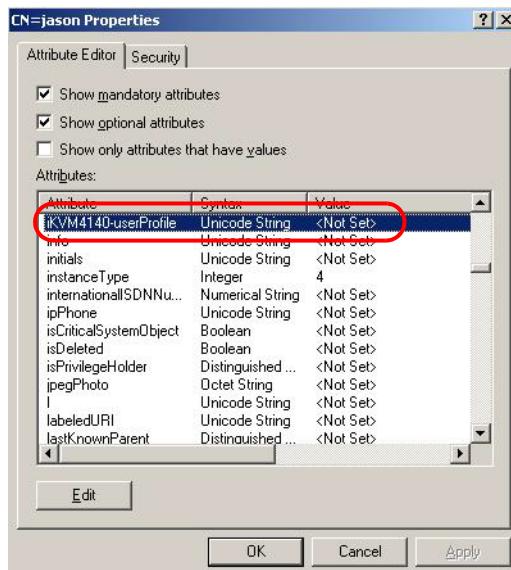
6. Click **Edit** to bring up the *String Attribute Editor*:
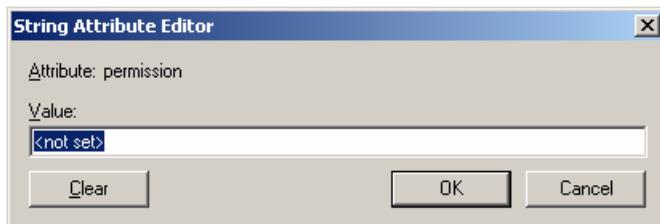
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7. Key in the KN2132 / KN4116 / KN4132 permission attribute values. For example:

> **Note:** Where *user* represents the Username of a KN2132 / KN4116 / KN4132 user whose permissions reflect the permissions you want Jason to have (see *Users*, page 80).

8. Click **OK**. When you return to the *Attribute Editor* page, the *iKVM4140-userProfile* entry now reflects the new permissions:
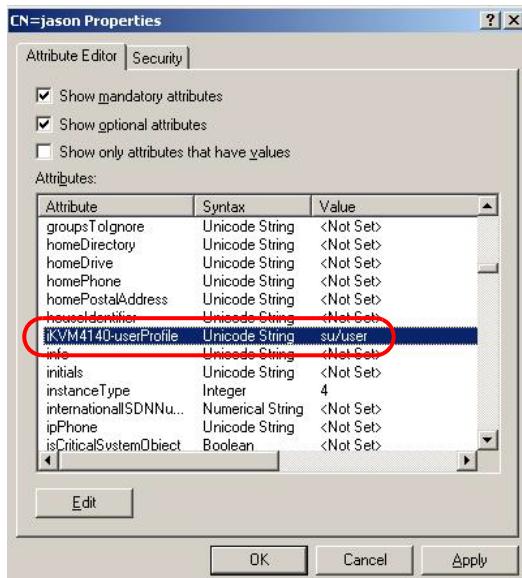
    a) Click **Apply** to save the change and complete the procedure. Jason now has the same permissions as *user*.

    b) Repeat the *Editing Active Directory Users* procedure for any other users you wish to add.

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Appendix

Safety Instructions

General

- Read all of these instructions. Save them for future reference.
- Follow all warnings and instructions marked on the device.
- Do not place the device on any unstable surface (cart, stand, table, etc.). If the device falls, serious damage will result.
- Do not use the device near water.
- Do not place the device near, or over, radiators or heat registers.
- The device cabinet is provided with slots and openings to allow for adequate ventilation. To ensure reliable operation, and to protect against overheating, these openings must never be blocked or covered.
- The device should never be placed on a soft surface (bed, sofa, rug, etc.) as this will block its ventilation openings. Likewise, the device should not be placed in a built in enclosure unless adequate ventilation has been provided.
- Never spill liquid of any kind on the device.
- Unplug the device from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
- The device should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- To prevent damage to your installation it is important that all devices are properly grounded.
- The device is equipped with a 3-wire grounding type plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not attempt to defeat the purpose of the grounding-type plug. Always follow your local/national wiring codes.
- Do not allow anything to rest on the power cord or cables. Route the power cord and cables so that they cannot be stepped on or tripped over.
- If an extension cord is used with this device make sure that the total of the ampere ratings of all products used on this cord does not exceed the

extension cord ampere rating. Make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.

◆ To help protect your system from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or un-interruptible power supply (UPS).

◆ Position system cables and power cables carefully; Be sure that nothing rests on any cables.

◆ When connecting or disconnecting power to hot-pluggable power supplies, observe the following guidelines:

  ◆ Install the power supply before connecting the power cable to the power supply.

  ◆ Unplug the power cable before removing the power supply.

  ◆ If the system has multiple sources of power, disconnect power from the system by unplugging all power cables from the power supplies.

◆ Never push objects of any kind into or through cabinet slots. They may touch dangerous voltage points or short out parts resulting in a risk of fire or electrical shock.

◆ Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.

◆ If the following conditions occur, unplug the device from the wall outlet and bring it to qualified service personnel for repair.

  ◆ The power cord or plug has become damaged or frayed.

  ◆ Liquid has been spilled into the device.

  ◆ The device has been exposed to rain or water.

  ◆ The device has been dropped, or the cabinet has been damaged.

  ◆ The device exhibits a distinct change in performance, indicating a need for service.

  ◆ The device does not operate normally when the operating instructions are followed.

◆ Only adjust those controls that are covered in the operating instructions. Improper adjustment of other controls may result in damage that will require extensive work by a qualified technician to repair.

◆ Do not connect the RJ-11 connector marked "UPGRADE" to a public telecommunication network.

Rack Mounting

- Before working on the rack, make sure that the stabilizers are secured to the rack, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.

- Always load the rack from the bottom up, and load the heaviest item in the rack first.

- Make sure that the rack is level and stable before extending a device from the rack.

- Use caution when pressing the device rail release latches and sliding a device into or out of a rack; the slide rails can pinch your fingers.

- After a device is inserted into the rack, carefully extend the rail into a locking position, and then slide the device into the rack.

- Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.

- Make sure that all equipment used on the rack – including power strips and other electrical connectors – is properly grounded.

- Ensure that proper airflow is provided to devices in the rack.

- Ensure that the operating ambient temperature of the rack environment does not exceed the maximum ambient temperature specified for the equipment by the manufacturer

- Do not step on or stand on any device when servicing other devices in a rack.

Technical Support

Technical support is available both by email and online (with a browser over the web):

International

Email Support		support@aten.com
Online Support	Technical Support	http://support.aten.com
	Troubleshooting Documentation Software Updates	http://www.aten.com
Telephone Support		886-2-8692-6959

North America

Email Support		ATEN TECH	support@aten-usa.com
		ATEN NJ	sales@aten.com
Online Support	Technical Support	ATEN TECH	http://www.aten-usa.com/support
		ATEN NJ	http://support.aten.com
	Troubleshooting Documentation Software Updates	ATEN TECH	http://www.aten-usa.com
		ATEN NJ	http://www.aten.com
Telephone Support		ATEN TECH	1-888-999-ATEN
		ATEN NJ	1-732-356-1703

When you contact us, please have the following information ready beforehand:

◆ Product model number, serial number, and date of purchase.

◆ Your computer configuration, including operating system, revision level, expansion cards, and software.

◆ Any error messages displayed at the time the error occurred.

◆ The sequence of operations that led up to the error.

◆ Any other information you feel may be of help.

IP Address Determination

If you are an administrator logging in for the first time, you need to access the KN2132 / KN4116 / KN4132 in order to give it an IP address that users can connect to. There are three methods to choose from. In each case, your computer must be on the same network segment as the KN2132 / KN4116 / KN4132. After you have connected and logged in you can give the KN2132 / KN4116 / KN4132 its fixed network address. (See *Network*, page 97.)

The Local Console

The easiest way to assign an IP address is from the local console. Refer to *First Time Setup*, page 25, for details on the procedure involved.

IP Installer

For computers running Windows, an IP address can be assigned with the *IP Installer* utility. The utility can be obtained from the *Download* area of our web site. Look under *Driver/SW*, and the model of your switch. After downloading the utility to your computer, do the following:

1. Unzip the contents of *IPInstaller.zip* to a directory on your hard drive.

2. Go to the directory that you unzipped the IPInstaller program to and run *IPInstaller.exe*. A dialog box similar to the one below appears:
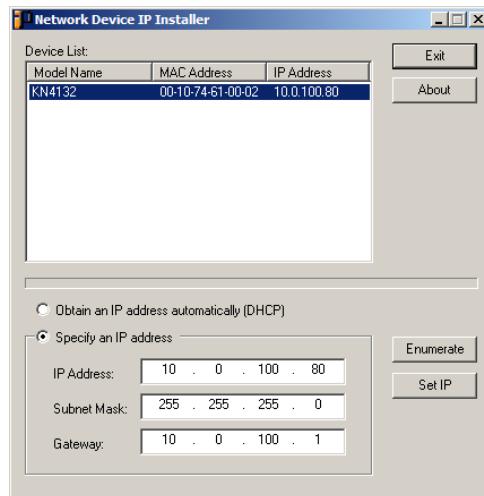
3. Select the KN2132 / KN4116 / KN4132 in the *Device List*.

> **Note:** 1. If the list is empty, or your device doesn't appear, click **Enumerate** to refresh the Device List.
>
> 2. If there is more than one device in the list, use the MAC address to pick the one you want. The KN2132 / KN4116 / KN4132's MAC address is located on its bottom panel.

4. Select either *Obtain an IP address automatically (DHCP)*, or *Specify an IP address*. If you chose the latter, fill the IP Address, Subnet Mask, and Gateway fields with the information appropriate to your network.

5. Click **Set IP**.

6. After the IP address shows up in the Device List, click **Exit**.

Browser

1. Set your computer's IP address to 192.168.0.*XXX*

   Where *XXX* represents any number or numbers except 60. (192.168.0.60 is the default address of the KN2132 / KN4116 / KN4132.)

2. Specify the switch's default IP address (192.168.0.60) in your browser, and you will be able to connect.

3. Assign a fixed IP address for the KN2132 / KN4116 / KN4132 that is suitable for the network segment that it resides on.

4. After you log out, reset your computer's IP address to its original value.

Port Forwarding

For devices located behind a router, port forwarding allows the router to pass data coming in over a specific port to a specific device. By setting the port forwarding parameters, you tell the router which device to send the data coming in over a particular port to.

For example, if the KN2132 / KN4116 / KN4132 connected to a particular router has an IP address of 192.168.1.180, you would log into your router's setup program and access the Port Forwarding (sometimes referred to as *Virtual Server*) configuration page. You would then specify 192.168.1.180 for the IP address and the port number you want opened for it (9000 for internet access, for example).

Since configuration setup can vary somewhat for each brand of router, refer to the router's User Manual for specific information on configuring port forwarding for it.

PPP Modem Operation

Basic Setup

In addition to the browser and AP methods, the KN2132 / KN4116 / KN4132 can also be accessed through its RS-232 port using a PPP dial-in connection, as follows:

1. Set up your hardware configuration to match the diagram, below:
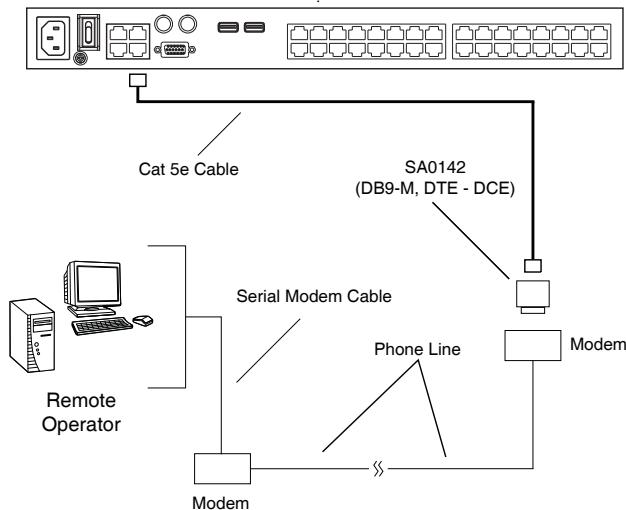
2. From your computer, use your modem dial-in program to dial into the KN2132 / KN4116 / KN4132's modem.

   Note: 1. If you don't know the KN2132 / KN4116 / KN4132 modem's serial parameters, get them from the KN2132 / KN4116 / KN4132 administrator.

   2. An example of setting up a modem dial-in program under Windows XP is provided on the next page.

3. Once the connection is established, open your browser, and specify **192.168.192.1** in the URL box.

   Note: The default username and password are blank.

From here, operation is the same as if you had logged in from a browser or with the AP programs.

Connection Setup Example (Windows XP)

To set up a dial-in connection to the KN2132 / KN4116 / KN4132 under Windows XP, do the following:

1. From the *Start* menu, select Control Panel → Network Connections → Create a New Connection.

2. When the *Welcome to the New Connection Wizard* dialog box appears, click **Next** to move on.

3. In the *Network Connection Type* dialog box, select *Connect to the network at my workplace*, then click **Next**.

4. In the *Network Connection* dialog box, select *Dial-up connection*, then click **Next**.

5. In the *Connection Name* dialog box, key in a name for the connection (for example, TPE-KN4132-01), then click **Next**.

6. In the *Connection Availability* dialog box, you can select either *Anyone's use* or *My use only*, depending on your preferences, then click **Next**.

   Note: If you are the only user on this computer, this dialog box won't appear.

7. In the *Phone Number to dial* dialog box, key in the phone number of the modem connected to the KN2132 / KN4116 / KN4132 (be sure to include country and area codes, if necessary), then click **Next**.

8. In the *Completing the New Connection Wizard* dialog box, check **Add a shortcut to this connection on my desktop**, then click **Finish**.

This completes the connection setup. Double click the desktop shortcut icon to make a PPP connection to the KN2132 / KN4116 / KN4132.

KA7140 Configuration and Operation

The KA7140 Adapter Cable connects a serial device to the KN2132 / KN4116 / KN4132.

Configuration

To configure the KA7140 to interact with the connected device, you need to set its serial parameters to match the parameters of the device, as follows:

1. In the Port Access page, right click on the port that the KA7140 is connected to.

2. In the popup that appears, choose Port Configuration to bring up the Port Properties dialog box:
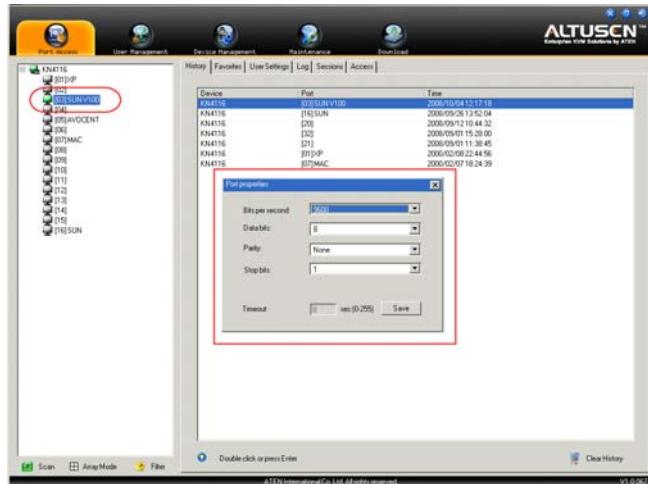
3. Select the appropriate values for the connected device, then click **Save**.

Operation

To operate the device connected to the port, in the Port Access page double click the port. After you switch to the port, issue the command that calls up the device.

Troubleshooting

General Operation

Symptom	Action
Erratic Operation	The KN2132 / KN4116 / KN4132 needs to be started before any cascaded switches.
	1. Make sure to power it on before powering on the switch.
	2. If the cascaded switch was started before the KN2132 / KN4116 / KN4132, reset or restart the cascaded switch.
	Press and release the *Reset* switch (see *Reset Switch*, page 9).
I can't access the KN2132 / KN4116 / KN4132, even though I have specified the IP address and port number correctly.	If the KN2132 / KN4116 / KN4132 is behind a router, the router's *Port Forwarding* (also referred to as *Virtual Server*) feature must be configured. See *Port Forwarding*, page 155, for details.
When logging in from a browser, the following message appears: *404 Object Not Found.*	If a login string has been set, make sure to include the forward slash and correct login string when you specify the KN2132 / KN4116 / KN4132's IP address. (See *Login String*, page 102.)
Sudden loss of network connection.	Close your KN2132 / KN4116 / KN4132 connection. Wait approximately 30 seconds, and log in again.
No video display on the remote console.	Set the local console resolution to 1280 x 1024 or less.
No video display on the remote console but mouse movements appear on the local console and mouse clicks have no effect	Press and release the left Alt key, then press and release the right Alt key
The display on the remote console is distorted and performing an Autosync doesn't resolve the problem.	Switch ports to a port with a different resolution, then switch back.
	If the above didn't resolve the problem, change the resolution and refresh rate for the system running on the port. Afterward, you can either run at the new resolution, or switch back to the original resolution.
I can't access my PN9108 when I click the *Power Management* icon.	Since the PN9108 already has over IP functionality, there is no need for the KN2132 / KN4116 / KN4132 to provide it. Therefore, only PON devices that don't have their own over IP functionality (such as the PN0108) are supported.
When I log in, the browser generates a *CA Root certificate is not trusted*, or a *Certificate Error* response.	The certificate's name is not found on Microsoft's list of Trusted Authorities. The certificate can be trusted. See *Trusted Certificates*, page 169, for details.

Mouse Problems

Symptom	Action
Mouse and/or Keyboard not responding.	Unplug the cable(s) from the console port(s), then plug it/them back in.
Mouse movement extremely slow	There is too much data being transferred for your connection to keep up with. Lower the video quality (see *Video Settings*, page 48) so that less video data is transmitted.
There are two mouse pointers after the remote system is accessed.	You can select another pointer type. See *Mouse Pointer Type*, page 55, for details.
When the mouse pointer is in Single Pointer mode, I can't access the Control Panel.	Recall the OSD and immediately change the pointer to Dual mode.
When I connect with the Windows Client AP, the remote mouse pointer is out of step.	1. Check the status of the *Mouse Sync Mode* setting (see *Mouse DynaSync Mode*, page 56). If it is set to *Automatic*, change the setting to *Manual* and refer to the information for *Manual Mouse Synchronization* on page 57. 2. If you are in Manual mode, use the *AutoSync* feature (see *Video Settings*, page 48), to sync the local and remote monitors. 3. If that doesn't resolve the problem, use the *Adjust Mouse* feature (see *Adjust mouse*, page 47) to bring the pointers back in step. 4. If the above fails to resolve the problem, refer to *Additional Mouse Synchronization Procedures*, page 165, for further steps to take.
When I log in with my Mac system, the local and remote mouse pointers do not sync.	There are two automatic Mouse DynaSync settings: the default, and Mac2. If mouse synchronization is not satisfactory with the default, try the Mac 2 setting. See the Note on page 57 for details.
When I log in with my Sun system, the local and remote mouse pointers do not sync	Automatic Mouse DynaSync sync only supports USB mice on Windows and Mac (G4 or higher) systems. You must sync the pointers manually. See *Mouse DynaSync Mode*, page 56, and *Manual Mouse Synchronization*, page 57, for further details. If the above fails to resolve the problem, refer to *Sun / Linux*, page 166, under *Additional Mouse Synchronization Procedures*.

Administration

Symptom	Action
After upgrading the firmware, after logging in from the browser, the KN2132 / KN4116 / KN4132 appears to still be using the old firmware version.	Log out. Delete your Java temporary internet files as follows: 1. Open Control Panel → Java. 2. In the *Temporary Internet Files* section, click **Settings**. 3. In the *Disk Space* section, click **Delete Files**. 4. In the dialog box that comes up, click **OK**.

The Windows Client AP

Problem	Resolution
My KN2132 / KN4116 / KN4132 units don't show up in the *Server List* window when I start the Windows Client program.	Only units whose Access Port settings for *Program* (see page 106) match the number specified for *Port* in the Server area of this dialog box appear in the Server List window. Make sure that your entry for Port matches the entry you have specified for Program on the Device Management *Service* page.
Windows Client won't connect to the KN2132 / KN4116 / KN4132.	DirectX 8.0 or higher must be installed on your computer.
Part of remote window is off my monitor.	1. If *Keep Screen Size* is not enabled (see *Screen Options*, page 38), use the *AutoSync* feature (see *Video Settings*, page 48), to sync the local and remote monitors. 2. If *Keep Screen Size* is enabled, you can scroll to the areas that are off screen.
The remote screen is rotated 90 degrees.	Enable *Keep Screen Size* (see *Control Panel Configuration*, page 37).
I cannot run *Net Meeting* when the Windows Client is running.	Enable *Keep Screen Size* (see *Control Panel Configuration*, page 37).

Mac Systems

Problem	Resolution
When I log in to the KN2132 / KN4116 / KN4132 with my Safari browser, it hangs when I use the Snapshot feature.	Force close Safari, then reopen it. Don't use the Snapshot feature in the future.
	To use the Snapshot feature with Safari, upgrade to Mac OS 10.4.11 and Safari 3.0.4.

The Java Applet and Java Client AP

For mouse synchronization problems, see *Mouse DynaSync Mode*, page 56, and *Additional Mouse Synchronization Procedures*, page 165. For connection and operation problems, see the table below:

Problem	Resolution
I can't connect to the KN2132 / KN4116 / KN4132.	1. Java 6 Update 3 or higher must be installed on your computer. 2. If a login string has been set, make sure to include the forward slash and correct string (see *Login String*, page 102) when you specify the KN2132 / KN4116 / KN4132's IP address. 3. Close Java reopen it, and try again.
I have installed the latest Java JRE, but I am having performance and stability problems.	There may be issues with the latest version because it is so new. Try using a Java version that is one or two updates earlier than the latest one.
The national language characters that I input do not appear.	Change the keyboard language of your computer to English-UK.
	Use the KN2132 / KN4116 / KN4132's *On-Screen Keyboard* and set the on-screen keyboard to the same language that the other system is using. (See *The On-Screen Keyboard*, page 54.)
Java performance deteriorates.	Exit the program and start again.
Pressing the Windows Menu key has no effect.	Java doesn't support the Windows Menu key.

Sun Systems

Problem	Resolution
Video display problems with HDB15 interface systems (e.g. Sun Blade 1000 servers).*	The display resolution should be set to 1024 x 768 @ 60Hz: **Under Text Mode:** Go to OK mode and issue the following commands: setenv output-device screen:r1024x768x60 reset-all **Under XWindow:** 1. Open a console and issue the following command: m64config -res 1024x768x60 2. Log out 3. Log in
Video display problems with 13W3 interface systems (e.g. Sun Ultra servers).*	The display resolution should be set to 1024 x 768 @ 60Hz: **Under Text Mode:** Go to OK mode and issue the following commands: setenv output-device screen:r1024x768x60 reset-all **Under XWindow:** 1. Open a console and issue the following command: ffbconfig -res 1024x768x60 2. Log out 3. Log in
I have a KA9131 USB adapter. Will it work with the KN2132 / KN4116 / KN4132?	Yes. Although we recommend the KA9170 for new purchases, if you already have a KA9131 you can use it instead of the KA9170.

* These solutions work for most common Sun VGA cards. If using them fails to resolve the problem, consult the Sun VGA card's manual.

The Log Server

Problem	Resolution
The Log Server program does not run.	The Log Server requires the Microsoft Jet OLEDB 4.0 driver in order to access the database.
	This driver is automatically installed with Windows ME, 2000 and XP.
	For Windows 98 or NT, you will have to go to the Microsoft download site:
	http://www.microsoft.com
	and do a search for *MDAC* to retrieve the driver file:
	MDAC 2.7 RTM Refresh (2.70.9001.0)
	Since this driver is used in Windows Office Suite, an alternate method of obtaining it is to install Windows Office Suite. Once the driver file or Suite has been installed, the Log Server will run.

Panel Array Mode

Problem	Resolution
Low resolution video – the screens don't display clearly.	This sometimes occurs due to the screens being scaled to fit in the panels. Decrease the number of panels that are displayed.
When multiple remote users are logged in, some of them only receive a partial image.	The first user to invoke Panel Array Mode should set it to display at least four panels.
When I try to move forward or backward one port, the display sometimes moves forward two ports or remains on the original port.	This occurs occasionally due to a net lag problem. The array automatically moves through the ports at a pre-selected time. By the time it gets your input It has already moved forward a port on its own - but that hasn't shown up on your display as yet.
	So, when it moves ahead or back due to your input it appears to have moved two ports (from its own movement plus your "forward one port" command), or remains on the original port (from its own forward movement plus your "back one port" command).

Additional Mouse Synchronization Procedures

If the mouse synchronization procedures mentioned in the manual fail to resolve mouse pointer problems for particular computers, try the following:

Note: 1. These procedures are to be performed on the computers attached to the KN2132 / KN4116 / KN4132's ports - not on the computer you are using to access the KN2132 / KN4116 / KN4132.

2. In order for the local and remote mice to synchronize, you must use the generic mouse driver supplied with the Windows operating system. If you have a third party driver installed - such as one supplied by the mouse manufacturer - you must remove it.

Windows:

1. Windows 2000:

   a) Open the Mouse Properties dialog box (Control Panel → Mouse → Mouse Properties)

   b) Click the *Motion* tab

   c) Set the mouse speed to the middle position (6 units in from the left)

   d) Set the mouse acceleration to *None*
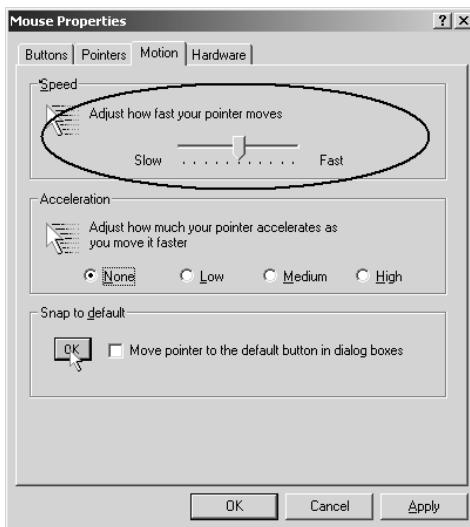
2. Windows XP / Windows Server 2003:

    a) Open the Mouse Properties dialog box (Control Panel → Mouse)

    b) Click the *Pointer Options* tab

    c) Set the mouse speed to the middle position (6 units in from the left)

    d) Disable *Enhance Pointer Precision*
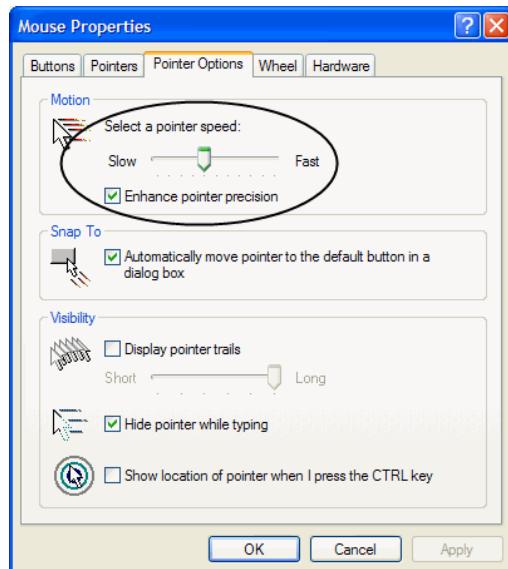
3. Windows ME:

    Set the mouse speed to the middle position; disable mouse acceleration (click **Advanced** to get the dialog box for this).

4. Windows NT / Windows 98 / Windows 95:

    Set the mouse speed to the slowest position.

Sun / Linux

Open a terminal session and issue the following command:

Sun: `xset m 1`

Linux: `xset m 0`

Additional Video Resolution Procedures

If you are running Windows, and wish to use the refresh rates indicated with an asterisk (*****) on page 6, do the following:

1. Open Control Panel → Display → Settings → Advanced → Monitor.

2. In the dialog box that comes up, make sure that the *Hide modes that this monitor cannot display* checkbox is unchecked.
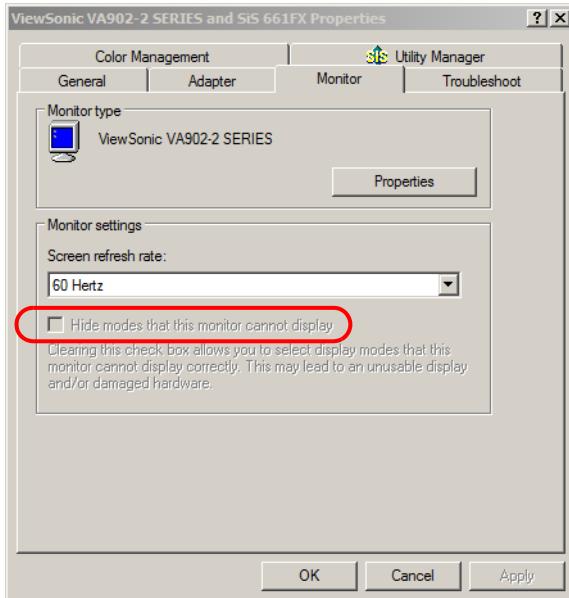
3. Click the arrow at the right of the *Screen refresh rate* listbox, and select the refresh rate you want from the list that appears.

Note: Make sure that your monitor supports the refresh rate you choose – if not, you may seriously damage your monitor.

Clear Login Information

If you are unable to perform an Administrator login (because the Username and Password information has become corrupted or you have forgotten it, for example) you can clear the login information with the following procedure.

Note: Performing this procedure also returns all settings to their defaults.

To clear the login information (and return all settings to their defaults), do the following:

1. Power off the KN2132 / KN4116 / KN4132 and remove its housing.

2. Use a jumper cap to short the mainboard jumper labeled **J23**.
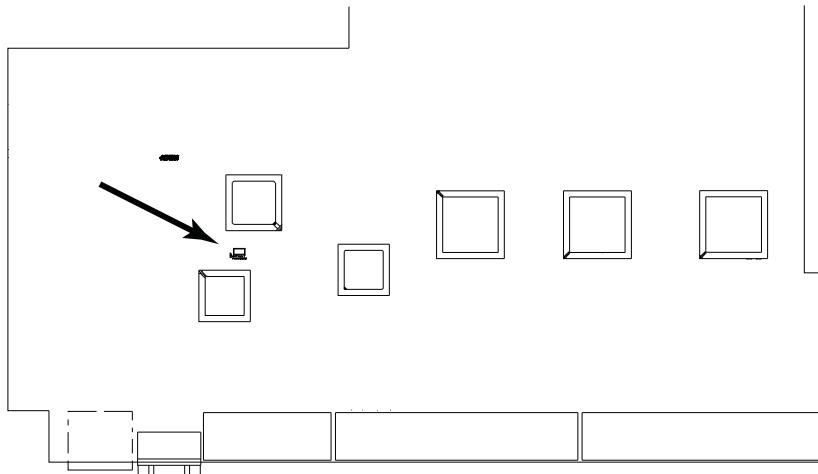
3. Power on the switch.

4. When the Link and 10/100Mbps LEDs flash, power off the switch.

5. Remove the jumper cap from J23.

6. Close the housing and start the KN2132 / KN4116 / KN4132 back up.

   After powering on the unit, you can use the default Super Administrator Username and Password (see *First Time Setup*, page 25), to log in.

Trusted Certificates

Overview

When you try to log in to the device from your browser, a Security Alert message appears to inform you that the device's certificate is not trusted, and asks if you want to proceed.

The certificate can be trusted, but the alert is triggered because the certificate's name is not found on Microsoft list of Trusted Authorities. You have two options: 1) you can ignore the warning and click **Yes** to go on; or 2) you can install the certificate and have it be recognized as trusted.

◆ If you are working on a computer at another location, accept the certificate for just this session by clicking **Yes**.

◆ If you are working at your own computer, install the certificate on your computer (see below for details). After the certificate is installed, it will be recognized as trusted.

Installing the Certificate

To install the certificate, do the following:

1. In the *Security Alert* dialog box, click **View Certificate.** The *Certificate Information* dialog box appears:
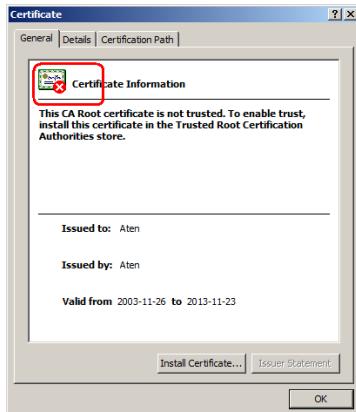
Note: There is a red and white **X** logo over the certificate to indicate that it is not trusted.

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2. Click **Install Certificate**.

3. Follow the Installation Wizard to complete the installation. Unless you have a specific reason to choose otherwise, accept the default options.

4. When the Wizard presents a caution screen:

Click **Yes**.

5. Next, click **Finish** to complete the installation; then click **OK** to close the dialog box.

Certificate Trusted

The certificate is now trusted:

When you click *View Certificate*, you can see that the red and white **X** logo is no longer present – further indication that the certificate is trusted:
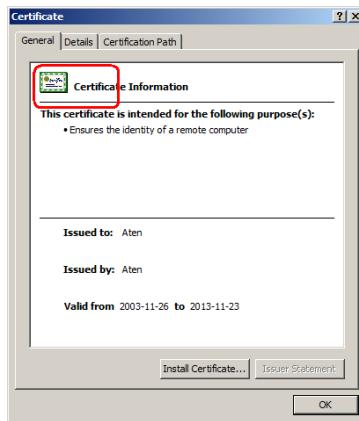
Specifications

Function			KN2132	KN4132
Computer Connections	Direct		32	
	Max		512	
Port Selection			Pushbutton / OSD / Hotkey	
Connectors	Console Port	Keyboard	1 x 6-pin Mini-DIN Female (Purple) 1 x USB Type A Female (White)	
		Video	1 x HDB-15 Female (Blue)	
		Mouse	1 x 6-pin Mini-DIN Female (Green) 1 x USB Type A Female (White)	
	KVM Port		32 x RJ-45 Female (Black)	
	Power		1 x 3-prong AC socket	
	LAN		2 x RJ-45 Female (Black)	
	PON		1 x RJ-45 Female (Black)	
	Modem		1 x RJ-45 Female (Black)	
	USB		3 x USB Type A Female (White)	
Switches	Reset		1 x Semi-recessed Pushbutton	
	Power		1 x Slide	
	Port Selection		2 x Pushbutton	
LEDs	On Line		32 (Green)	
	Selected		32 (Orange)	
	Power		1 (Blue)	
	Link		1 (Green)	
	10 / 100 / 1000 Mbps		1 (Red / Red + Green / Green)	
Emulation	Keyboard/Mouse		PS/2 / USB / Serial	
Video			1600x1200 @ 60Hz	
Scan Interval			1–255 secs	
I/P Rating			100–240VAC; 50/60Hz; 1.0A	
Power Consumption			110V / 33.40W 230V / 33.60W	110V / 45.80W 230V / 46.30W
Environment	Operating Temp.		0–50° C	
	Storage Temp.		-20–60° C	
	Humidity		0–80% RH	
Physical Properties	Housing		Metal	
	Weight		5.59 kg	5.63 kg
	Dimensions L x W x H		43.36 x 41.35 x 4.40 cm (19" 1U)	

Function			KN4116
Computer Connections	Direct		16
	Max		256
Connectors	Console Port	Keyboard	1 x 6-pin Mini-DIN Female (Purple) 1 x USB Type A Female (White)
		Video	1 x HDB-15 Female (Blue)
		Mouse	1 x 6-pin Mini-DIN Female (Green) 1 x USB Type A Female (White)
	KVM Port		16 x RJ-45 Female (Black)
	Power		1 x 3-prong AC socket
	LAN		2 x RJ-45 Female (Black)
	PON		1 x RJ-45 Female (Black)
	Modem		1 x RJ-45 Female (Black)
	USB		3 x USB Type A Female (White)
Switches	Reset		1 x Semi-recessed Pushbutton
	Power		1 x Slide
	Port Selection		2 x Pushbutton
LEDs	On Line		16 (Green)
	Selected		16 (Orange)
	Power		1 (Blue)
	Link		1 (Green)
	10 / 100 / 1000 Mbps		1 (Red / Red + Green / Green)
Emulation	Keyboard/Mouse		PS/2 / USB / Serial
Video			1600x1200 @ 60Hz
Scan Interval			1–255 secs
I/P Rating			100V–240VAC; 50/60Hz; 1.0A
Power Consumption			110V / 39.60W 230V / 40.00W
Environment	Operating Temp.		0–50° C
	Storage Temp.		-20–60° C
	Humidity		0–80% RH
Physical Properties	Housing		Metal
	Weight		5.52 kg
	Dimensions L x W x H		43.36 x 41.35 x 4.40 cm (19" 1U)

OSD Factory Default Settings

The factory default settings are as follows:

Setting	Default
OSD Hotkey	[Scroll Lock] [Scroll Lock]
Port ID Display	Port Number + Name
Port ID Display Duration	3 Seconds
Scan/Skip Mode	All
Scan Duration	5 Seconds
Screen Blanker	0 Minutes (disabled)
Beeper	On
Accessible Ports	F (Full) For all Users on all Ports

Serial Adapter Pin Assignments

SA0142:   RJ45-F to DB9-M (Black Connector)   DTE to DCE

KN2132 / KN4116 / KN4132 (RJ45)	Pins (8)		Modem/Device (DB9)
RTS	1	<————————>	7
DTR	2	<————————>	4
TXD	3	<————————>	3
CTS	4	<————————>	8
GND	5	<————————>	5
RXD	6	<————————>	2
DCD	7	<————————>	1
DSR	8	<————————>	6
			9 NC not used

Supported KVM Switches

The following is a list of fully supported KVM switches that can be used in a cascaded installation:

◆ KH88

◆ KH98

◆ KH1508

◆ KH1516

◆ CS9134

◆ CS9138

Note: The installation cannot be cascaded beyond the second level.

Limited Warranty

ALTUSEN warrants this product against defects in material or workmanship for a period of one (1) year from the date of purchase. If this product proves to be defective, contact ALTUSEN's support department for repair or replacement of your unit. ALTUSEN will not issue a refund. Return requests can not be processed without the original proof of purchase.

When returning the product, you must ship the product in its original packaging or packaging that gives an equal degree of protection. Include your proof of purchase in the packaging and the RMA number clearly marked on the outside of the package.

This warranty becomes invalid if the factory-supplied serial number has been removed or altered on the product.

This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence or modification of any part of the product. This warranty does not cover damage due to improper operation or maintenance, connection to improper equipment, or attempted repair by anyone other than ALTUSEN. This warranty does not cover products sold AS IS or WITH FAULTS.

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